U.S. DEPARTMENT OF COMMERCE
National Technical Information Service
PB-296 266

The Aerometric and Emissions Reporting System (AEROS) Manual Series. Volume II AEROS User's Manual. Update Number 2

(U.S.) Environmental Protection Agency, Research Triangle Park, NC

Mar 79

BIBLIOGRAPHIC INFORMATION

PB-296 266

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Mar 79

PERFORMER: Environmental Protection Agency, Research Triangle Park, NC. Office of Air Quality Planning and Standards.
EPA/450/2-76/029-2, OAQPS-1.2-039-2

See also report dated Dec 76, PB-273 391, PB-258 154, and PB-201 408.

This publication replaces the previous draft of Volume II, dated December, 1976. The information contained in APTD-0663, Users Manual: SAROAD (Storage and Retrieval of Aerometric Data), and APTD-1135, Guide for Compiling a Comprehensive Emission Inventory, is also covered in this volume, and this volume contains the more current information. The procedures covered in this manual are subject to continual update and revision, as noted in Chapters 0.1 and 1.0 of this volume.

KEYWORDS: *Air pollution, *Information systems, *Manuals, *Aerometric and emissions reporting system.

Available from the National Technical Information Service, Springfield, Va. 22161

PRICE CODE: PC A12/MF A01

PB 296266

EPA-450/2-76-029-2
OAQPS No. 1.2-039-2
March 1979

AEROS MANUAL SERIES
VOLUME II:
AEROS USER'S MANUAL

UPDATE
Number
2

REPRODUCED BY
NATIONAL TECHNICAL
INFORMATION SERVICE
U. S. DEPARTMENT OF COMMERCE
SPRINGFIELD, VA. 22161

This Update Notice concerns the enclosed replacement pages for Volume II of the AEROS Manual Series. Please remove and insert pages as listed below.

	REMOVE	INSERT	COMMENTS
1.	iii to vii	iii to viii	Table of Contents revised to reflect Update.
2.	--	0.2.0-3 to 0.2.0-5	Update Notice II-2.*
3.	--	2.6.1-1 to 2.6.1-2	Description of HATREMS Area Source Form.
4.	--	2.6.2-1 to 2.6.2-3	Description of HATREMS Point Source Form.
5.	3.1.1-1 to 3.1.1-4 3.1.1-25 to 3.1.1-26 3.1.1-65 to 3.1.1-66	3.1.1-1 to 3.1.1-4 3.1.1-25 to 3.1.1-26 3.1.1-65 to 3.1.1-66	Form Preparation-NEDS Area Source Form.
6.	3.1.2-9 to 3.1.2-10 3.1.2-57 to 3.1.2-60	3.1.2-9 to 3.1.2-10 3.1.2-57 to 3.1.2-60	Form Preparation-NEDS Point Source Form.
7.	--	3.6.1-1 to 3.6.1-10	Form Preparation-HATREMS Area Source Form.
8.	--	3.6.2-1 to 3.6.2-20	Form Preparation-HATREMS Point Source Form.
9.	--	4.6.1-1 to 4.6.1-2	Keypunching Instructions-HATREMS Area Source Form.
10.	--	4.6.2-1 to 4.6.2-11	Keypunching Instructions-HATREMS Point Source Form.
11	--	5.0.0-1	Information on State Processing Procedures.
12.	--	5.1.0-1 to 5.1.0-4	New Section on SPP-Emissions Data.
13.	--	5.2.0-1 to 5.2.0-4	New Section on SPP-Air Quality Data.
14.	--	5.3.0-1 to 5.3.0-2	New Section on Submission of Data to R.O.

ENVIRONMENTAL PROTECTION AGENCY	SECTION Volume II Update	SECTION 0	CHAPTER 2	SUBJECT 0
NATIONAL AIR DATA BRANCH	CHAPTER Update Notices	DATE 3/15/79		PAGE 4
VOLUME II. AEROS USER'S MANUAL	SUBJECT	Update II-2		

	REMOVE	INSERT	COMMENTS
15.	6.2.1-1 to 6.2.1-4	6.2.1-1 to 6.2.1-4	Instructions for NEDS Control Log.
16.	--	6.2.2-1 to 6.2.2-4	Instructions for SAROAD Control Log.
17.	--	6.2.3-1 to 6.2.3-3	Instructions for SAROAD Site File Log.
18.	6.3.1-1 to 6.3.1-3	6.3.1-1 to 6.3.1-4	Instructions for NEDS State Transmittal Form.
19.	--	6.3.2-1 to 6.3.2-6	Instructions for SAROAD State Transmittal Form.
20.	--	6.3.3-1 to 6.3.3-4	Instructions for Magnetic Tape File Transmittal Form.
21.	--	6.4.1-1 to 6.4.1-2	Instructions for NEDS Receipt of Data Letter.
22.	--	6.4.2-1 to 6.4.2-2	Instructions for SAROAD Receipt of Data Letter.
23.	--	6.5.1-1 to 6.5.1-5	Instructions for NEDS Error Resolution.
24.	--	6.5.2-1 to 6.5.2-5	Instructions for SAROAD Error Resolution.
25.	7.1.1-1 to 7.1.1-5	7.1.1-1 to 7.1.1-51	Revised to combine material previously in Sections 7.1.1 and 7.2.1.
26.	7.1.2-1 to 7.1.2-4	7.1.2-1 to 7.1.2-31	Revised to combine material previously in Sections 7.1.2 and 7.2.2.
27.	7.2.1-1 to 7.2.1-13	7.2.1-1 to 7.2.1-6	Instructions for Regional Office Recordkeeping for NEDS.
28.	7.2.2-1 to 7.2.2-7	7.2.2-1 to 7.2.2-10	Instructions for Regional Office Recordkeeping for SAROAD.

	REMOVE	INSERT	COMMENTS
29.	7.3.1-1 to 7.3.1-6	7.3.1-1 to 7.3.1-30	Revision to Updating Procedures for NEDS.
30.	7.3.2-1 to 7.3.2-4	7.3.2-1 to 7.3.2-13	Revision to Updating Procedures for Air Quality Data.
31.	7.4.2-1	7.4.2-1	Revised information on Validation of Air Quality Data.

UPDATE SUMMARY
Volume II

Number	Date
II-2	3/15/79

*When you have made the changes indicated in this Notice, date and initial the Notice and insert it in Chapter 0.2 of Volume II as a record of the Updates received and filed.

1976

FOREWORD

This publication replaces the previous draft of Volume II, dated December, 1975. The information contained in APTD-0663, Users Manual: SAROAD (Storage and Retrieval of Aerometric Data), and APTD-1135, Guide for Compiling a Comprehensive Emission Inventory, is also covered in this volume, and this volume contains the more current information. The procedures covered in this manual are subject to continual update and revision, as noted in Chapters 0.1 and 1.0 of this volume. A user who is not certain that he has the most current information available or who has other questions or comments concerning the contents of this publication should contact the Library Services Office or the AEROS Manual Project Officer as indicated in Chapters 0.1 and 1.0.

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AEROS USER'S MANUAL

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LIST OF ABBREVIATIONS

AEROS	Aerometric and Emissions Reporting System
AQCR	Air Quality Control Region
CO	Carbon monoxide
CC$_2$	Carbon dioxide
DP	Decimal point
EPA	U.S. Environmental Protection Agency
FAA	Federal Aviation Administration
HATREMS	Hazardous and Trace Emissions System
HC	Hydrocarbons
HDV	Heavy-duty vehicle
IPP	Implementation Planning Program
LDV	Light-duty vehicle
LPG	Liquified petroleum gas
LTO	Landing-take off
MSL	Mean sea level
NADB	National Aerometric Data Bank
NASN	National Air Sampling Network
NEDS	National Emissions Data System
NO	Nitric oxide
NO$_2$	Nitrogen dioxide
NO$_x$	Oxides of nitrogen
NSPS	New Source Performance Standard
O$_3$	Ozone
SAROAD	Storage and Retrieval of Aerometric Data
SCC	Source Classification Code
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SMSA	Standard Metropolitan Statistical Area
SO$_2$	Sulfur dioxide
SO$_x$	Oxides of sulfur
SOTDAT	Source Test Data
ST HR	Start hour
TSP	Total suspended particulates
UTM	Universal Transverse Mercator
VMT	Vehicle-miles traveled

Most of the area source data in HATREMS has been generated from NEDS. To add new area source data to NEDS that will be entered later into HATREMS, code the NEDS Area Source Form described in Section 2.1.1.

To update data already in HATREMS or to add new data to HATREMS without going through NEDS, code the HATREMS Area Source Form, Figure 2.6.1-a. The term "new data" includes data for "free" area sources that are not currently defined by the NEDS Area Source Category (ASC's).

The HATREMS Area Source Form has only one card type. This card records the area source category usage factors and the emissions rates for each pollutant associated with a specified ASC. Complete one card for each pollutant emitted.

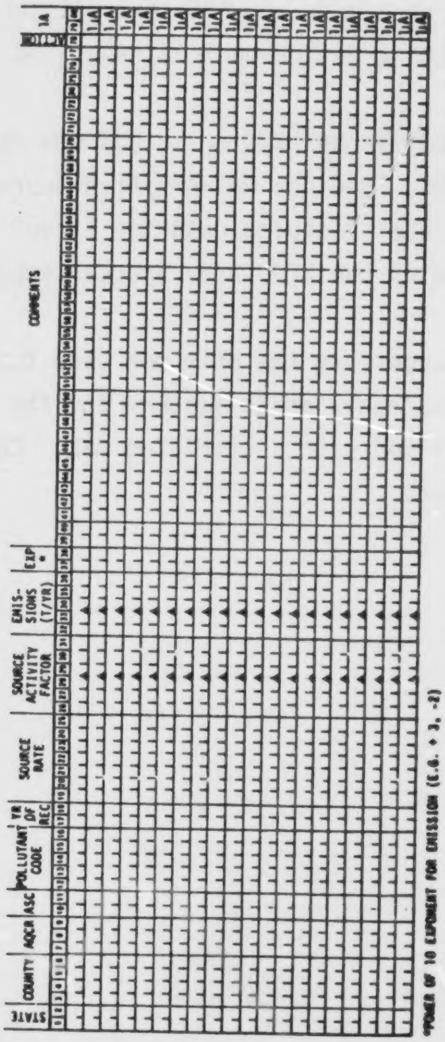

STATE
COUNTY
AQCR
ASC
POLLUTANT CODE
YR OF REC
SOURCE RATE
SOURCE ACTIVITY FACTOR
EMISSIONS (T/YR)
EXP *
COMMENTS
ACTION
1A
*POWER OF 10 EXPONENT FOR EMISSION (E.G. + 3, -2)

Figure 2.6.1-a. HATREMS Areas Source Form.

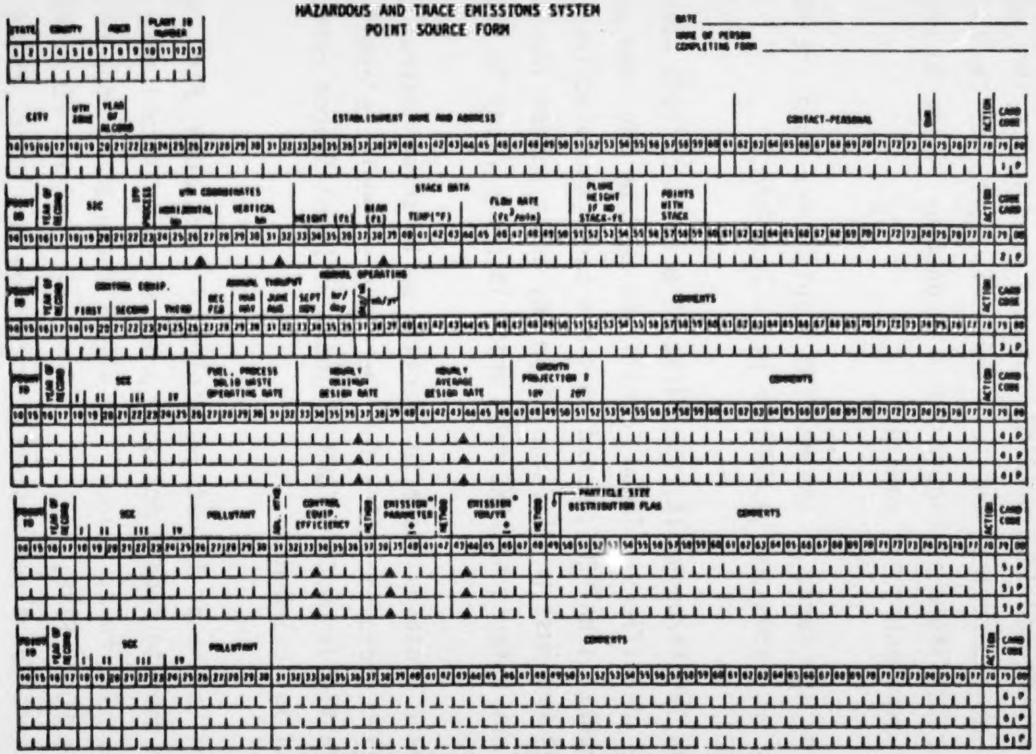
The HATREMS Point Source Form updates operating and emissions data that have been entered into HATREMS directly from NEDS. The form can also be used to add sources that are unique to HATREMS. The HATREMS Point Source Form shown in Figure 2.6.2-a contains fields to code six unique cards for each point source.

The first two cards on the HATREMS Point Source Form are identical to the first two cards on the NEDS Point Source Form.

On cards TWO through SIX, the first 15 columns contain plant and point unique identifiers. These identifiers must be the same as in NEDS to update a HATREMS record that has been generated from NEDS. These identifiers must be different from any other unique identifier in NEDS to add new data to HATREMS data which is not already in NEDS.

Card THREE contains space to identify up to three control devices. Card THREE also contains fields for operating schedule information that correspond to fields on Card FOUR of the NEDS Point Source Form. A comment field is included.

The form has space to code multiples of Cards FOUR, FIVE, and SIX, allowing the user to record multiple process and pollutant data for each point source. The Point Source Form allows the user to code up to three each of Cards FOUR, FIVE, and SIX. If additional Cards FOUR, FIVE or SIX are required for a point source, code them on a blank Point Source Form. Be sure to code card columns 1 through 15 to correspond to the original Point Source Form. When additional Cards FOUR, FIVE, and SIX are coded, leave data fields on the other cards on the additional form blank. Card FOUR records normal and average operating rates for each



HAZARDOUS AND TRACE EMISSIONS SYSTEM
POINT SOURCE FORM

DATE ____________

NAME OF PERSON COMPLETING FORM ____________

STATE
COUNTY
AQCR
PLANT ID NUMBER
CITY
UTM ZONE
YEAR OF RECORD
ESTABLISHMENT NAME AND ADDRESS
CONTACT-PERSONAL
ACTION
CARD CODE
POINT ID
SIC
UTM COORDINATES
HORIZONTAL km
VERTICAL km
STACK DATA
HEIGHT (ft)
DIAM (ft)
TEMP(°F)
FLOW RATE (ft³/min)
PLUME HEIGHT IF NO STACK-ft
POINTS WITH STACK
CONTROL EQUIP.
FIRST
SECOND
THIRD
ANNUAL THRUPUT
DEC FEB
MAR MAY
JUNE AUG
SEPT NOV
NORMAL OPERATING
hr/day
wk/yr
COMMENTS
SCC
I
II
III
IV
FUEL, PROCESS SOLID WASTE OPERATING RATE
HOURLY MAXIMUM DESIGN RATE
HOURLY AVERAGE DESIGN RATE
GROWTH PROJECTION %
10Y
20Y
POLLUTANT
CONTROL EQUIP. EFFICIENCY
EMISSION* PARAMETER
EMISSION* TON/YR
PARTICLE SIZE DISTRIBUTION FLAG
1 P
2 P
3 P
4 P
5 P
6 P

THE 4 FIELDS IN CC 14 THROUGH 30 ARE OPTIONAL FOR CARD 6, BUT CC 1-13 ARE ALWAYS REQUIRED.
* cc 40 & 41 AND 46 & 47 ARE TO INDICATE POWER OF EXPONENTS (E.G. +3, -2)

Figure 2.6.2-a. HATREMS Point Source Form.

SCC associated with the point source for which data are being coded. This card also has fields to record 10 to 20 year growth projections. A comments field for each SCC is included.

Card FIVE records emissions data by pollutant. Emissions data includes an estimate of the control efficiency for each pollutant.

Card SIX allows the user to enter comments for each SCC/ pollutant combination for which a Card FIVE has been completed. Alternatively, Card SIX can contain comments for the plant level, for the point level, or for the SCC level, as desired.

Emissions from sources too small or too difficult to be surveyed individually are reported collectively as "area sources." The object of area source calculation is to obtain as accurate an estimate as possible of this collective contribution to total emissions. In the NEDS Area Source format, each county or county equivalent (parish, census division, independent city, etc, for states where counties are not used) represents the smallest region for which area source emissions are calculated.

This chapter presents the techniques to be used both for estimating area source quantities and for completing the Area Source Input Form shown in Figure 3.1.1-a. The description for each area source discusses the data collection methods that are used to obtain area source totals, and states how to fill out the area source coding form and how to apportion the county totals to the proper source categories.

At present there are no EPA requirements for state submittal of area source emissions data in the NEDS area source format. The National Air Data Branch (NADB) serves as the chief originator and verifier of the data in the NEDS area source data bank. NADB welcomes voluntary submittal by state and local agencies of area source data that are an improvement over the data generated internally. Originally the data incorporated into the NEDS area source data bank were collected according to the procedures outlined in Chapter 5, APTD-1135.[1] This work was accomplished by in-house NADB efforts and NADB contractors and produced data that were representative of the years 1969 to 1971. Subsequently all of these data have been updated through in-house efforts.

For future maintenance of the area source data base, NADB plans an annual update of the NEDS area source files. To accomplish these updates, computer programs are used which accept as inputs magnetic tapes and punched card data containing State level fuel use data available from other governmental publications, along with national, State and county level data on employment, population, climatic data, vehicle registrations, vehicle miles travelled and other data items. These data are used by the programs to compute county level area source activity data and produce card image records for updating the NEDS area source file. This entire system is known as the Area Fuel Consumption Allocation (AFCA) system. Details of AFCA capabilities are discussed in AEROS Volume IV.

PROCEDURES FOR STATE/LOCAL AGENCY DATA SUBMITTALS

NADB recognizes that some State and local agencies may have access to information that would provide more accurate area source data than that prepared by NADB. Therefore, in order to improve the quality of the data base, such data submittals are encouraged. To avoid unnecessary duplication of effort, state and local agencies contemplating such data submittals should be aware of the NADB programs for reporting area source data. It is not worth the effort involved for a state or local agency to prepare area source data that are inferior to or duplicate the data prepared by NADB. It is very helpful, however, for state and local agencies to submit data which will improve upon or supplement the data generated by NADB. It is asked that the following guidelines be followed when submitting area source data:

1. The data must be submitted in the standard NEDS area source format, either on coding forms, punched cards, or card image tape.
2. Data from state/local agencies should be submitted to the appropriate EPA Regional Office, which, in turn, will forward the data to NADB.
3. If necessary, appropriate documentation should accompany the data to indicate the source of the data and how the data were derived.

There are numerous reasons for requiring documentation to accompany the data. First, NADB must have some criteria to determine whether the data submitted are in fact an improvement over the existing NADB data. Second, NADB must be able to answer questions concerning the data base. If no references are available, NADB can only refer the questioner to the agency that supplied the data. In addition, NADB is interested in identifying new sources of information which may be useful for refinement of the present methods for reporting area source data. The documentation does not need to be extensive. If the area source data are calculated based on other data, include a sample calculation to show the method for deriving the area source data. It is not necessary to submit extensive sheets of calculations or all the intermediate data used in calculations, since determination of the method used to derive the data is the prime consideration.

SUGGESTED DIRECTION FOR STATE/LOCAL DATA COLLECTION

The following sections, which cover the procedures for coding and collection of area source data for the NEDS, emphasize the general techniques which may be used by a State or local agency to make improvements upon the area source data prepared by NADB. It is not intended that the methods discussed therein represent a complete list of all methods which may be used for the collection of area source data. Other sources of data known to State and local agencies may be excellent sources of information. Use of other data sources is encouraged if such use will provide more accurate, detailed data than could be obtained through the standard techniques. Use of all such techniques should be properly documented, however, according to the criteria previously noted.

may be able to provide useful information. Modifications of the above equations may provide relationships for predicting residential, commercial-institutional, or industrial space heating fuel oil use which can be summed to obtain grid, county, or state totals. It is suggested that the derived totals be adjusted to conform with the state totals given in literature references. This step in effect corrects for variations in the parameters used in the above equations.

2. COAL CONSUMPTION

It may be necessary to determine consumption of both anthracite and bituminous coal. Anthracite, or hard coal, is produced almost exclusively in Pennsylvania and is available in significant quantities only in states that are within easy shipping distance from Pennsylvania. Anthracite may be consumed by all source categories, although most is used by residential sources. Bituminous, or soft coal, is available in most areas of the country. Also included as bituminous coal are the lower grades of sub-bituminous coal and lignite. Bituminous coal is often favored for use by electric utilities, manufacturing industries, and coke producers. Bituminous coal is used in some areas for residential and commercial-institutional heating.

a. NADB Method. The same general techniques used for fuel oil may be adapted to determine coal consumption. In the method which is computerized for NADB use, residential coal use is calculated for each county based on the following equation:[25]

$$\text{Tons of coal per dwelling unit} = 0.003874\, e^{\left(7.6414 - \frac{1000.0}{\text{Degree-Days}}\right)} \quad (4)$$

The number of dwelling units using coal for space heating is obtained from reference 12 and is updated annually based on additional data from the Bureau of Mines[10] or the Bureau of the Census. Degree-days are obtained from reference 20. The coal use predicted by Equation (4) is distributed between anthracite and bituminous coal based on the estimated residential market share of each.[25] Use of coal for non-space heating purposes is ignored. Methods used for calculation of commercial-institutional and industrial coal use are virtually identical to those discussed for fuel oil. The fuel use totals are obtained from references 10 and 26, with the same general procedures used to calculate area source totals which are apportioned to counties.

b. Alternatives to NADB Method. Again, to improve on the data prepared by NADB for NEDS, it is suggested that the acquisition of non-published data is the best approach. Obtaining sales data from coal dealers and distributors, surveys of individual sources or source categories, use of source permit or registration systems, etc., are methods that may provide useful data. Since the emissions from coal-fired boilers vary a great deal from one type of boiler to another, source surveys or use of source registration data for coal users are particularly useful. By determining the types of boilers and furnaces in service plus the extent of controls applied, emissions from area source coal use can be hand calculated and entered into the amount of dust generated are vehicle speed and type of surface. Other variables influencing dust emissions are the wind speed, surface moisture, and type of vehicle. To determine the dust emissions, it is necessary to estimate vehicle-miles of travel on unpaved roads. Such estimates, or at least the total mileage of unpaved roads, may be obtained from state highway departments. If only miles of unpaved roads are available, the average traffic volume must be estimated. Estimation of average traffic volume should take into account the type of road (primitive, unimproved, graded, or gravel) and location (urban, rural, suburban, etc.). Emissions may then be calculated using emission factors. Suggested emission factors for unpaved roads are included in Compilation of Air Pollutant Emission Factors,[27] Supplement No. 5. NADB has compiled VMT on unpaved roads by county.[65] County unpaved road mileage derived from state mileage data[37] is apportioned to counties on the basis of total population for urban areas and farm acreage for rural areas. Average traffic volume as a function of total population has also been derived based on data for a selected number of states. These factors are combined to produce VMT by county.

2. Unpaved airstrips (spaces 17-21, Section 5): Many of the same factors affecting emissions from unpaved roads also are applicable to unpaved airstrips. To estimate aircraft LTO's on unpaved airstrips, the operators of such airfields should be contacted. NADB has compiled LTO cycles for unpaved airstrips based on data from the Federal Aviation Administration[66] showing U.S. airstrips by surface type and number of based aircraft at each airstrip.
3. Agricultural land tilling (spaces 33-37, Section 5): Dust may result from several of the tilling operations necessary for soil preparation. The soil type and the desired change in soil structure determine the particular tilling procedure which is used. Tilling techniques include:

rough plowing, mulch plowing, and the cutting of narrow slits in the sod into which seed and fertilizer may be placed. In any case, the soil is disturbed in a manner which changes the structure of the soil. The soil type, surface moisture, and resulting tool speed affect the quantity of dust generated. The type of equipment used and the wind speed also have some effect on dust generation. To estimate the dust emissions, the number of acres tilled must be determined. The Census of Agriculture[51] reports cropland acreage. Also, officials of state agriculture departments or county agricultural extension agents should be able to provide such data. These officials should be able to furnish information about the tillage practices used. The Census of Agriculture was used to obtain the data in NEDS. It was assumed there were three tillings for each acre of harvested cropland.[65] Emission factors for agricultural tilling are included in Supplement No. 5 to Compilation of Air Pollutant Emission Factors (AP-42).[27]

4. Heavy construction (spaces 22-27, Section 5): Road and building construction activity results in generation of dust. Land clearing, excavation, and vehicle traffic around the construction site are principal causes of dust emissions. The soil type, moisture, wind speed, and type of operations taking place are the principal facotrs influencing emissions. An estimate of the area subject to highway construction may be obtained from highway departments. Estimates of the area subject to building construction may be obtained from local public works departments or similar agencies responsible for construction permit applications. To estimate the extent of construction activity for NEDS, state level construction employment data[67] have been converted to acres of construction[65] and the resulting totals apportioned to counties. Emission factors for heavy construction will also be included in Supplement No. 5 to AP-42.[27]

Table 3.1.2-b.
UTM Zones by State

State	Valid Zone No.[a]
01 Alabama	16
02 Alaska	01-09,59
03 Arizona	11-12
04 Arkansas	15-16
05 California	10-11
06 Colorado	12-13
07 Connecticut	18-19
08 Delaware	18
09 District of Columbia	18
10 Florida	16-17
11 Georgia	16-17
12 Hawaii	04-05
13 Idaho	11-12
14 Illinois	15-16
15 Indiana	16
16 Iowa	14-15
17 Kansas	14-15
18 Kentucky	16-17
19 Louisiana	15-16
20 Maine	19
21 Maryland	17-18
22 Massachusetts	18-19
23 Michigan	16-17
24 Minnesota	14-16
25 Mississippi	15-16
26 Missouri	15-16
27 Montana	11-13
28 Nebraska	13-15
29 Nevada	11
30 New Hampshire	18-19
31 New Jersey	18
32 New Mexico	12-13
33 New York	17-18
34 North Carolina	16-18
35 North Dakota	13-14
36 Ohio	16-17
37 Oklahoma	13-15
38 Oregon	10-11
39 Pennsylvania	17-18
40 Puerto Rico	19-20
41 Rhode Island	19
42 South Carolina	17
43 South Dakota	13-14
44 Tennessee	15-17
45 Texas	13-15
46 Utah	12
47 Vermont	18-19
48 Virginia	17-18
49 Washington	10-11
50 West Virginia	17-18
51 Wisconsin	15-16
52 Wyoming	12-13
53 American Samoa	02
54 Guam	55
55 Virgin Islands	20

[a] Zone number must be within range indicated.

YEAR OF RECORD, COLUMNS 20-21

Enter the year of record for that data that are entered on Card One. The entry is right justified, zero filled, with no blanks.

NAME AND ADDRESS, COLUMNS 22-61

The name and address should describe the physical location of the point source. Enter the name the point source used or the name the agency has on record. Enter a street address for the point source, if possible. DO NOT use the name and address of some distant headquarters. Use common abbreviations, do not use periods, and leave blanks between words to ensure a readable entry. The city, county, and state have previously been entered, so do not repeat. However, if the city does not appear in City-County Identification Table, AEROS Manual, Volume V, Section 2.2.0, then the city must be entered in this field. Use columns 57-61 for the zip code.

The entry is left justified.

CONTACT - PERSONAL, COLUMNS 62-73

Enter the name of the person who should be contacted with regard to activities. This entry is left justified.

OWN(ERSHIP), COLUMN 74

Enter a one letter code for the type of ownership of the point source as follows:

P	Private
L	Local Government
S	State Government
F	Federal Government
U	Utility

No blanks are allowed.

FUEL SULFUR CONTENT (%), COLUMNS 40-42; ASH CONTENT (%), COLUMNS 43-45

The data entered should be sulfur or ash content on a weight percent basis.

If:	Combustion	Entry required
	No combustion	Zero (Col. 42 & 45)
	Content unknown	Leave blank
	Solid waste	Zero fill EXCEPT for high or unusual sulfur content

The entry is right justified. Observe the decimal point (triangle) and zero fill.

HEAT CONTENT 10^6 Btu/SCC, COLUMNS 46-50

The entry should reflect the gross or higher heating value of fuels consumed.

If:	Combustion	Entry required
	No combustion	Zero in Col. 50
	Solid waste	Zero in Col. 50

The entry is right justified.

COMMENTS, COLUMNS 51-70

The operating characteristics of most sources are defined by an SCC and associated data on one Card Six; therefore, only the "comments" field (columns 51 through 70) of one line of one Card Six is available for each SCC.

Comments must relate to the corresponding SCC. When the SCC is general (e.g., ending in 99), a description of the process is entered. Abbreviation comments must be intelligible. Useful notes pertaining to the source should be written on the back of the coding form for use of the agency retaining the original copies.

SOURCE, COLUMN 71

This code allows a quick visual classification of the point. Source codes that correspond to each of the SCC codes for the point are entered.

Code	Description of Sources
B	Boiler
P	Process
C	Other combustion unit
S	Solid waste

CONFID, COLUMN 72

At present, all data in NEDS are considered to be public information. Thus, column 72 should be coded with a 2 to indicate that no information is confidential. This procedure should be followed in the absence of any legal ruling on this subject.

COLUMNS 73-77

Not assigned. Leave blank; do not use.

ACTION CODES, COLUMNS 78-80

Column 79 is preprinted P to indicate point source; column 80, if not preprinted, should be coded 6 to indicate Card Six. In column 78, use the add code (A) if adding a new point or SCC. Use the delete code (D) to delete an existing SCC. Use the change code (C) to change data for a field or fields on Card Six. The SCC is an identifier and cannot be changed using the C code. If an SCC is incorrect and should be changed, the incorrect SCC must be deleted and the correct SCC then added with the appropriate complete set of data on Card Six.

SUMMARY

Instructions for Card Six are summarized in Table 3.1.2-g and illustrated in Figure 3.1.2-o.

Table 3.1.2.g
Summary of Instructions for Card Six[a]

Column	Data		L	R	0	B	Remarks
1-13	Card One					X	
14-15	Card Two					X	
16-17	Year of record of the data entered on this card			X	X	X	>59, <80
18-25	SCC listing, AEROS Man., Vol. V SCC used ONLY ONCE per Point ID. Use as many as needed to completely describe point.			X		X	
26-32	Use units listed for SCC (annual rate)			X			
33-39	Use units listed for SCC (hourly rate)						Decimal point
40-45	Combustion - Entry required No combustion - Zero in 42 and 45 Content unknown - Leave blank Solid waste - Zero fill EXCEPT high sulfur content						Decimal point
46-50	Combustion - Entry required No combustion - Zero Solid waste - Zero			X			
51-70	One line per SCC, use common abbreviations			X			
71	Boiler Process Other combustion Solid waste	B P C S		X		X	
72	Enter code 2					X	
78	Action code A, C, or D					X	
79	Preprinted						
80	6					X	

[a] L - left justify; R - right justify; 0 - zero fill; B - no blanks.

HATREMS AREA SOURCE FORM

Refer to Section 2.6.1 for a general description of the HATREMS Area Source Form.

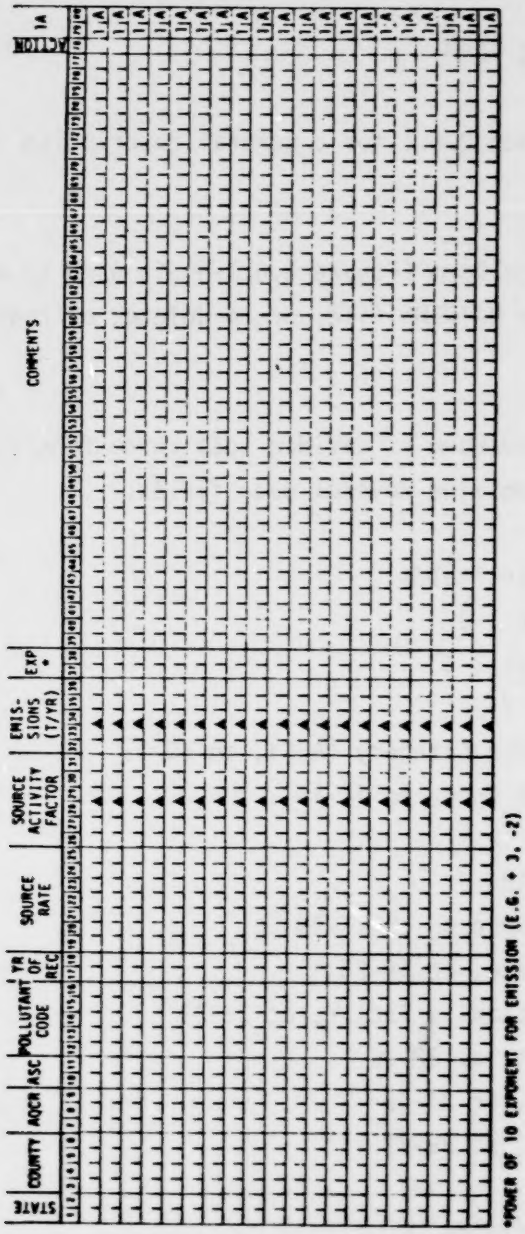
The Area Source Form (Figure 3.6.1-a) is used to add data on new area sources to the HATREMS file, or to delete, or change area source data in the file.

The Area Source Form is divided into three functional fields. Each functional field contains several data fields.

1. Identifier fields
   State, cc 1-2
   County, cc 3-6
   AQCR, cc 7-9
   Area Source Category (ASC), cc 10-11
   Pollutant Code, cc 12-16

2. Data fields
   Year of Record, cc 17-18
   Source Rate, cc 19-25
   Source Activity Factor, cc 26-31
   Emissions, cc 32-36
   Exponent, cc 37-38
   Comments, cc 39-77

3. Control fields
   Action, cc 78
   Card Code, cc 79-80



HATREMS AREA SOURCE FORM

STATE	COUNTY	AQCR	ASC	POLLUTANT CODE	YR OF REC	SOURCE RATE	SOURCE ACTIVITY FACTOR	EMISSIONS (T/YR)	EXP *	COMMENTS	ACTION	1A
												1A
												1A
												1A
												1A
												1A
												1A
												1A
												1A
												1A
												1A
												1A
												1A
												1A
												1A
												1A
												1A
												1A
												1A
												1A
												1A

*POWER OF 10 EXPONENT FOR EMISSION (E.G. + 3, -2)

Figure 3.6.1-a. HATREMS Area Source Form.

Nine Basic Rules

1. Legibility is mandatory - Print data in block capital letters.
2. Characters - slash zeros (Ø) and the letter Z (Ƶ).
3. DON'T change field names on the coding form.
4. Decimal point - Use mixed numbers only when a triangle is preprinted between columns on the coding form to indicate the decimal position.
5. To indicate Nonapplicable - Enter a right-justified zero in the field.
6. To indicate NO DATA - Leave the field blank.
7. Identifiers must be complete! Otherwise the computer will reject the data.
8. Control codes must be complete! Otherwise the computer will reject the data.
9. Left-justify letters and right-justify numbers.

CODING THE IDENTIFIER FIELDS

The HATREMS area source data bank is generated from the NEDS area source data bank. Consequently, the identifiers used to update HATREMS area source data which has been generated from NEDS must be the same as the NEDS identifiers.

Refer to Volume V of the AEROS Manual of Codes for the State, County, and AQCR codes to be used.

Identifier columns must not be left blank; identifier fields must be completed on every HATREMS card.

State (Columns 1-2)

The State Code is a two-digit code indicating the State in which the area source data was gathered. The State code is entered in the first two columns of the HATREMS Area Source Form. The AEROS list of State Codes includes codes for the District of Columbia, Puerto Rico, American Samoa, Guam, and the Virgin Islands. The zero must be included in State Codes 01-09. The State Codes are in Section 2.1.0 of AEROS Volume V, Manual of Codes.

County (Columns 3-6)

The County Code is a four-digit code indicating the county or county equivalent in which the area source data was collected. The code is entered in columns three through six of the HATREMS Area Source Form. The County Codes are in Section 2.2.0 of AEROS Volume V, Manual of Codes. The county codes in this section are identified by *. For Massachusetts, county equivalents have been designated. These codes are also found in Section 2.2.0 of Volume V. Maryland, Missouri, Nevada, and Virginia each include cities that are county equivalents. Their codes are in Section 2.6.0 of Volume V. Each space in the County Code field must be completed.

Air Quality Control Region (Columns 7-9)

The Air Quality Control Region (AQCR) Code is a three-digit code that identifies the AQCR in which the county or county equivalent (Columns 3-6) is located. Since AQCR's and counties or county equivalents overlap, portions of a single county can be in more than one AQCR.

In that case, enter into columns 3-6 the code of the AQCR in which most of the county population is located. Each column in the AQCR field must be filled. The AQCR codes are in Section 2.4.0 of AEROS Volume V, Manual of Codes.

Area Source Category (Columns 10-11)

The ASC is a two-character code that identifies the source of the emission of the pollutant coded in columns 12-16. For example, the ASC for Residential Anthracite Coal is 01. The HATREMS ASC's are the same as the NEDS ASC's, and when updates are made to HATREMS data that have been created directly from NEDS, the ASC coded on the HATREMS card must correspond to the NEDS ASC code. The NEDS ASC's are listed in Section 3.11.0 of AEROS Volume V, Manual of Codes. The NEDS ASC's are all numeric.

Six additional ASC's have been defined specifically for HATREMS:

ASC	CODE
Light duty gasoline fuel	AA
Heavy duty gasoline fuel	AB
Diesel fuel	AC
Rubber tire wear	AD
Brake lining wear	AE
Motor oil consumption	AF

Pollutant Code (Columns 12-16)

The HATREMS pollutant code is a five-character code identifying an area source pollutant. The first character is alphabetic; it represents the physical state of a pollutant. The remaining characters are numeric; they specifically identify the pollutant. The pollutant state codes are in Section 8.4.0 of AEROS Volume V, Manual of Codes. The pollutant identifier codes are in Section 8.4.1 of AEROS Volume V, Manual of Codes. All five characters of the pollutant code must be completed when data are added or changed in the HATREMS file.

Multiple ASC/pollutant combinations can exist for a single area source. A separate card is required for each ASC/pollutant combination. If multiple ASC/pollutant combinations apply to a specific area source, the same area source identifiers must be coded into columns 1-9 on each of the cards that applies to that area source.

CODING THE DATA FIELDS

The HATREMS data fields contain source activity rates and emissions data specific to the ASC/pollutant combination coded in the category fields discussed in the preceding section.

Year of Record (Columns 17-18)

Year of record is a two-character numeric code corresponding to the year for which the data are representative, not the year in which the coding is done.

Source Rate (Columns 19-25)

Source rate is the area source equivalent of the annual throughput of a point source. Emissions are calculated by applying an emission factor to the source rate for a specific ASC/pollutant combination. Source rate units vary with the area source categories, e.g. ASC 01, Residential Anthracite Coal, has units of tons/yr., while ASC AE, Brake Lining Wear, has units of million vehicle miles traveled/yr. Section 8.5 of this volume gives the source rate units/ASC. The Source Rate must be right-justified, and it is always numeric. Decimals are not allowed.

Source Activity Factor (Columns 26-31)

To calculate emission rates for four selected area source categories, the Source Activity Factor must be applied to the Source Rate. ASC 60, for example, is Forest Wild Fires with source rate units of acres of forest. The Source Activity Factor is the number of tons per acre of forest burned per year. The following calculation shows the annual throughput equivalent for this ASC for a forest area of 1,000 acres where five tons per year are burned:

annual throughput equivalent = source rate/yr. X source activity factor/yr.

= 1,000 acres X 5 tons burned/acre/year

= 5,000 tons burned/year

The emission factor is then applied to the product of Source Rate and Source Activity Factor to calculate the annual emissions for the area source. The four ASC's that require source activity factors are:

ASC	Source Activity Factor units
60 Forest wild fires	tons per acre
61 Managed burning	tons per acre
62 Agricultural field burning	tons per acre
63 Frost control	number of days fired per year

For the other ASC's, the user has the option to enter similar information, such as actual pollutant concentration in fuel burned. If this option is used, and the HATREMS system calculates the emissions, the Source Activity Factor overrides the corresponding information in the HATREMS Area Source Emission Factor File for the ASC being coded. The HATREMS Area Source Emission Factor Table is in Section 8.5 of AEROS Volume V, Manual of Codes.

Source Activity Factor can be coded with 3 decimals, columns 29-31 contain the decimal portion of the number. If a whole number is coded, enter it in columns 26-28 and enter zeros into columns 29-31. Fill any columns in the decimal portion of columns 26-31 that are not used with zeros, for ASC's with no Source Activity Factor; code a zero to the left of the decimal point (column 28) and fill the decimal field, columns 29-31, with zeros.

When the Source Activity Factor for ASC's 60, 61, 62 or 63 is unknown, leave columns 26-31 blank.

Emissions (Columns 32-36)

Emissions data can be hand-calculated and entered in units of tons/year. The data are entered in scientific notation format. The number to be multiplied by a power of ten can be a mixed number. If a fraction of fewer than three decimal places is used, fill the unused decimal spaces with zeros. If a whole number is used, fill the entire decimal portion of the field with zeros. If columns 32-36 are left blank, the system will calculate the emissions rates by applying the Source Rate (and the Source Activity Factor in the cases described above) to the HATREMS Emission Factor File.

Exponent (Columns 37-38)

The exponent is a positive or negative power of ten to be applied to the emissions coded in columns 32-36. The sign (+ or -) is always coded in column 37. The exponent is always coded in column 38. Always code the sign, even when it is positive. As an example, 5,050 tons/yr. emissions would be coded as:

EMISSIONS (T/Yr)					EXP *	
32	33	34	35	36	37	38
	5	0	5	0	+	3

Comments (Columns 39-77)

The Comments field allows the user to record any information pertinent to the ASC/pollutant data sources or method of emissions calculations. Any combination of alphabetic or numeric data can be entered into this field. Completion of this field is optional.

CODING THE CONTROL FIELDS

The control fields include an Action Code and a preprinted Card Code. These codes are used to tell the computer how to handle the data.

Action Code (Column 78)

The Action Code signals an add, change, or delete operation. The only valid codes for this are:

A	add
C	change
D	Delete

The Action Code must be completed for every HATREMS area source card. The action codes affect only the HATREMS data bank, not the NEDS data bank.

When data are added to HATREMS, even if HATREMS already contains other data for the same area source, i.e. other ASC/pollutant combinations, the information must be input with an Action Code of "A".

To delete an area source or an ASC/pollutant combination from HATREMS, use Action Code "D." Coding the first sixteen spaces of the area source card and a "D" in column 78 will delete the ASC/pollutant data from the HATREMS file.

To change a data field, code the first sixteen spaces to correspond to the identifier of the HATREMS record to be changed. Code the new information in the applicable data field. Leave the other data fields blank. Code a "C" in column 78. Caution: once a change transaction has been performed manually on a HATREMS area source, the source will not be included in future automatic updates to HATREMS from NEDS.

Note: Adds, changes, and deletes must be coded at the ASC/pollutant level, not at the ASC level alone.

HATREMS POINT SOURCE FORM

For a general description of the HATREMS Point Source Form refer to Section 2.6.2.

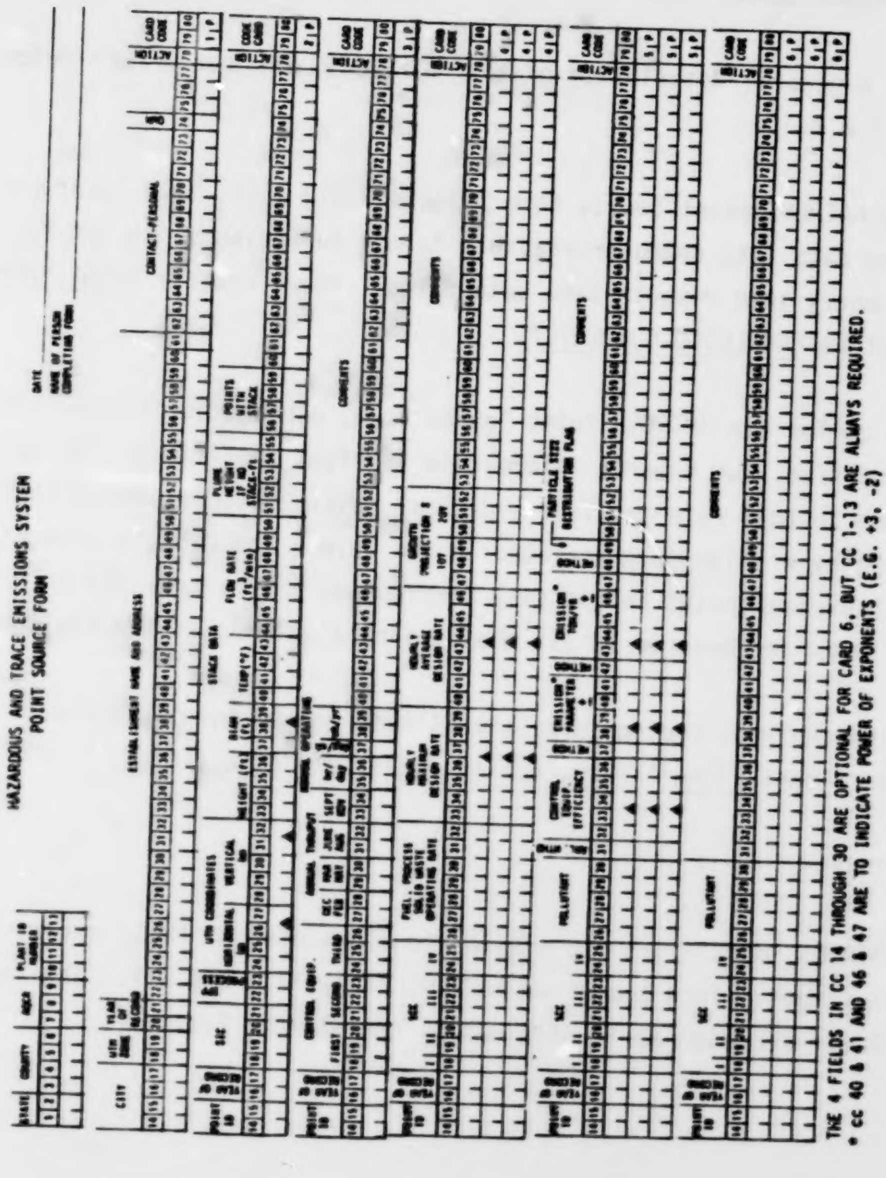
The HATREMS Point Source Form (Figure 3.6.2-a) is used to organize emissions data into computer-readable format for keypunching and subsequent entry into computerized data files. Therefore the POINT SOURCE FORM must be COMPLETED CORRECTLY.

In coding the HATREMS Point Source Form, alphabetic information is left justified, but numeric information is right justified. The only exception to this rule involves a decimal point. The decimal point is indicated by a triangle preprinted on the form. The data is entered so that the decimal point in the data corresponds to the triangle on the form. Zeros are entered in all the remaining columns of the field.

Like the NEDS coding form, the HATREMS coding form is divided into three sections: identifiers, action codes, and data fields.

Identifiers

HATREMS identifiers are similar to those used by NEDS, except that pollutant identifiers appear on HATREMS cards FIVE and SIX. The following columns are used as identifiers by the HATREMS System:



HAZARDOUS AND TRACE EMISSIONS SYSTEM
POINT SOURCE FORM

DATE
NAME OF PERSON COMPLETING FORM
STATE
COUNTY
AQCR
PLANT ID NUMBER
CITY
ESTABLISHMENT NAME AND ADDRESS
CONTACT-PERSONAL
ACTION
CARD CODE
POINT ID
UTM COORDINATES
STACK DATA
COMMENTS
CONTROL EQUIP.
FIRST
SECOND
THIRD
ANNUAL THRUPUT
NORMAL OPERATING
SCC
GROWTH PROJECTION %
POLLUTANT
PARTICLE SIZE DISTRIBUTION FLAG

THE 4 FIELDS IN CC 14 THROUGH 30 ARE OPTIONAL FOR CARD 6, BUT CC 1-13 ARE ALWAYS REQUIRED.

* CC 40 & 41 AND 46 & 47 ARE TO INDICATE POWER OF EXPONENTS (E.G. +3, -2)

Figure 3.6.2-a. HATREMS Point Source Form.

Card No.	Identifier Columns
1	1 to 21
2	1 to 17 & 56-59
3	1 to 17
4	1 to 25
5	1 to 30
6	1 to 30

No blanks are allowed in the identifier fields of Cards ONE through FIVE except the city code on card ONE (columns 14-17), which should be left blank if the facility is located outside the city limits of the cities identified in the AEROS Manual, Volume V. The degree to which identifier fields for Card 6 must be coded depends on the level of operation to which the Card 6 refers. When HATREMS data are coded for an existing NEDS source, the identifiers must be the same as those used to identify the source in NEDS.

Control Codes

Control codes tell the computer how to process the data. All control code fields (columns 78, 79, and 80) must be filled in on each card. Column 78 indicates whether the data on the coding form adds, changes or deletes data already in the data bank. Column 79 indicates that the source is a point source. Column 80 indicates the card number for this particular emission point.

The procedures for adding, changing, or deleting HATREMS point source data are the same as for NEDS.

Use an "add" transaction to add data to the HATREMS file for point sources and/or pollutants that have not previously been entered into HATREMS.

Use a "change" transaction to change data already in the HATREMS file. Code only the field to be changed; leave the remaining fields blank. If non-HATREMS specific data are to be changed, they should be changed in NEDS with subsequent update of HATREMS from the automatic NEDS-HATREMS update procedure. Also when source data are changed manually in HATREMS the change is not reflected in NEDS, and the HATREMS point source affected will not be updated automatically from NEDS in the future.

Use a "delete" transaction to remove a HATREMS point source or point source/pollutant combination from the file. If a point source is to be deleted from both NEDS and HATREMS delete it from NEDS and let the automatic update procedure delete it from HATREMS.

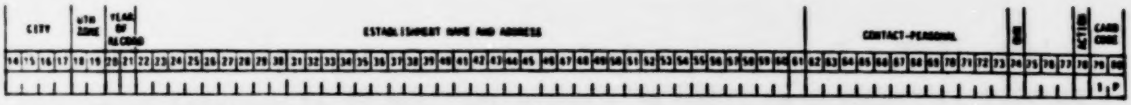
Data Fields

Data fields constitute the rest of the form. The discussion that follows applies to the fields individually or in groups. It will start with card ONE and continue through card SIX. The information will be presented in text form and will be illustrated where necessary. The first three cards of the HATREMS Point Source coding sheet contain information from the NEDS. Only a brief description of this information will be given here. For more complete information, the user should consult Section 3.1.2 on the NEDS Point Source Form preparation.

Ten Basic Rules

1. Legibility is mandatory - Print using block capital letters.
2. Characters - slash zeros (Ø) and the letter Z (Ƶ).
3. DON'T change field names on the coding form.
4. Decimal point - Use mixed numbers only when a triangle is preprinted between columns on the coding form to indicate the decimal position.
5. To indicate Nonapplicable - Enter a right justified zero in the field.
6. NO DATA - Leave the field blank.
7. Identifiers must be complete! Otherwise the computer will reject the data.
8. Control Codes must be complete! Otherwise the computer will reject the data.
9. DON'T use fields (or columns) without names (headings).
10. Left justify letters - Right justify numbers.

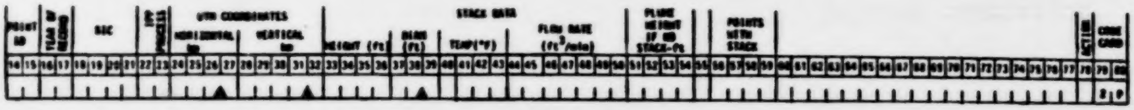
Card ONE



CITY
UTM ZONE
YEAR OF RECORD
ESTABLISHMENT NAME AND ADDRESS
CONTACT-PERSONAL
ACTION
CARD CODE
1 P

HATREMS card ONE is identical (except for the Card Code) to card ONE in NEDS. It identifies and locates a facility which is a point source. For more detail consult Section 3.1.2, instructions for completing NEDS Card 1.

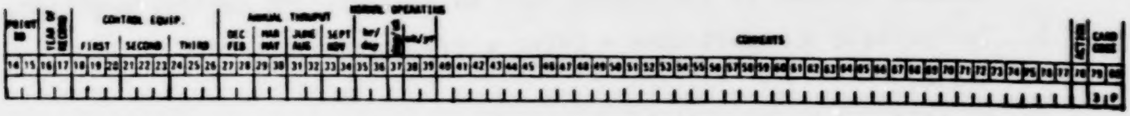
Card TWO



POINT ID
YEAR OF RECORD
SIC
IPP PROCESS
UTM COORDINATES
HORIZONTAL km
VERTICAL km
STACK DATA
HEIGHT (ft)
DIAM (ft)
TEMP(°F)
FLOW RATE (ft³/min)
PLUME HEIGHT IF NO STACK-ft
POINTS WITH STACK
ACTION
CARD CODE
2 P

HATREMS card TWO is identical (except for the Card Code) to card TWO in NEDS. It shows stack data and identifies emission points. For more detail consult Section 3.1.2, instructions for completing NEDS Card 2.

Card THREE



HATREMS card THREE contains some of the information contained on cards THREE and FOUR in NEDS. In addition HATREMS card THREE provides a comments section. For more detail consult Section 3.1.2, instructions for completing NEDS Card THREE.

Control Equipment (Columns 18-26)

This field is divided into three subfields providing space to describe primary, secondary and tertiary pollution control equipment.

Columns 18-20 - The primary control equipment is any device whose main purpose is reducing emission of a pollutant, and it is reported by an entry in Columns 18-20. When none of the equipment codes appear to be applicable, choose the code that most clearly resembles the actual equipment and include a comment in columns 40-77 of card THREE. Report only control devices that reduce otherwise uncontrolled emissions. Do not report equipment, for example recycling equipment, which as a normal part of the source activity incidentally reduces the quantity of the pollutants emitted.

Columns 21-23 - The secondary control equipment is a device following in series another device designed to remove the same pollutant. Engineering judgment must be used to determine whether a device installed primarily for removal of one pollutant also removes another pollutant.

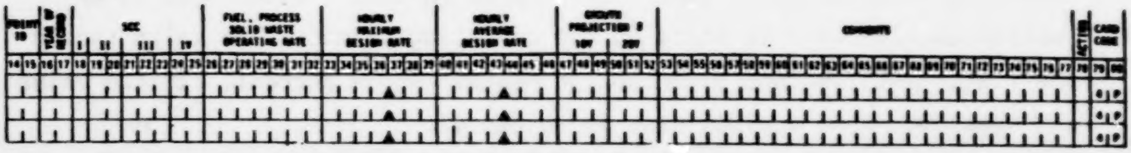
Columns 24-26 - The tertiary control equipment is a device following in series the secondary control equipment designed to remove the same pollutant. Control equipment identification codes are in Section 3.3.0 of Volume V, AEROS Manual of Codes.

Code all control devices applicable to the point source even if the devices are not directly applicable to the HATREMS pollutant being coded.

Comments (Columns 40-77)

The comments field on card THREE provides additional clarification of the control equipment coded in columns 18-26. Because hazardous pollutant control is an expanding area it is unlikely that the control codes could fully detail all devices in use. This comments field provides the user the opportunity to explain a particular control device.

Card Four



POINT ID
SCC
I
II
III
IV
FUEL, PROCESS SOLID WASTE OPERATING RATE
HOURLY MAXIMUM DESIGN RATE
HOURLY AVERAGE DESIGN RATE
GROWTH PROJECTION %
10Y
20Y
COMMENTS
ACTION
CARD CODE
14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80
4 P
4 P
4 P

Card FOUR in HATREMS contains some of the information found on card SIX in NEDS. In addition, average design rate and growth projection information is also coded on HATREMS card FOUR. A comments field is included for further clarification of operating rate, design rates or growth projections. There is a space provided for multiples of card FOUR, allowing the user to enter multiple process and pollutant operating data for each point source. Up to three cards FOUR may be entered on a single coding sheet. Additional cards FOUR can be coded using additional forms. If multiple cards FOUR are coded, code only one card for each Point ID-SCC combination. Duplicate Point ID-SCC cards are not acceptable.

The SCC codes and applicable units are in Section 3.7.0 of AEROS Volume V Manual of Codes.

Average Design Rate (Columns 40-46)

The average design rate is expressed in the same units as the SCC, except that it is converted to an hourly rate. Note: the preprinted triangle between card columns 43 and 44 represents an implied decimal point.

10-Year Growth Projections (Columns 47-49)

The total estimated percent growth in yearly production expected over the next ten years should be entered in this field. This information usually will be found on the operating permit. The value should be right justified and given to the nearest whole percent. If the value is negative, code a minus sign in column 47.

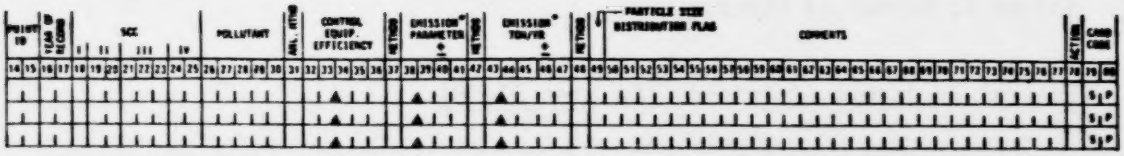
20-Year Growth Projection (Columns 50-52)

The total estimated percent growth in yearly production expected over the next twenty years should be entered in this field. This information usually will be found on the operating permit. The value should be right justified and given to the nearest whole percent. If the value is negative, code a minus sign in column 50.

Comments (Columns 53-77)

A comments field is available for each SCC entered on card FOUR. This field should be used to clarify any assumptions made in the calculation of the production rates or the estimation of the growth rates. If a general SCC, i.e. one ending in 9's, is recorded, explain the SCC in the comments field.

Card FIVE


POINT ID
YEAR OF RECORD
SCC
I
II
III
IV
POLLUTANT
CONTROL EQUIP. EFFICIENCY
METHOD
EMISSION* PARAMETER ±
METHOD
EMISSION* TON/YR ±
METHOD
PARTICLE SIZE DISTRIBUTION FLAG
COMMENTS
ACTION
CARD CODE
14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80
5 P

Card FIVE contains pollutant-specific emission data. A separate card should be coded for each pollutant emitted at the emission point. Up to three cards FIVE may be entered on a single coding form for each emission point. Additional cards FIVE can be coded on additional forms if needed. Only one card FIVE can be coded for each SCC/pollutant combination. Coded information includes control equipment efficiency, emission parameter, emissions and method codes for determination of the data and a comments field for clarification of the data.

Pollutant Code (Columns 26-30)

Pollutant codes to be used in HATREMS are listed in Section 8.4.0 of Volume V, Manual of Codes. The first digit indicates the physical state of the pollutant. The next four digits identify the specific pollutant being emitted. Should any pollutant be added to HATREMS in the future, the pollutant code may be found in the HATREMS pollutant codes, Section 8.4.2 of AEROS Volume V, Manual of Codes.

Analytical Method (Column 31)

The analytical method codes correspond to the last digit of the SOTDAT pollutant code. When the specific method of analysis depends on the substance being analyzed, code a general method of analysis in column 31 and enter the name of the technique in the comments section of this card. Enter this code only when reporting stack test data. Otherwise leave this field blank. The codes are in Section 8.4.3, AEROS Volume V, Manual of Codes.

Control Equipment Efficiency (Columns 32-36)

The overall collection efficiency, in percent by weight, of all control equipment at the emission point will be entered in this field for each pollutant. (There is a separate card FIVE for each pollutant.) Assume that the pollutant load entering the control equipment is the normal, uncontrolled quantity for a specific process. If removal efficiency for a particular pollutant is unknown, leave columns 32-36 blank. If there is no effective removal, enter zeros in all columns.

Method Code (Column 37)

The control efficiency method code tells the user information about how the control equipment efficiency was calculated. This code enables differentation between stack test methods which are approved by the EPA and those which are not and between tests for the specific pollutant and estimates based on another related pollutant (e.g. the use of total particulates for lead). It also allows differentation among stack tests, engineering estimate, or published factor. The control equipment efficiency method codes are in Section 8.2.0 of Volume V, Manual of Codes.

Emission Parameter (Columns 38-41)

It is necessary to know the percent of the pollutant in the fuel before emissions of a combustion source may be calculated. Fossil fuels vary widely in the concentrations of minor constituents and this emission parameter is an essential part of an accurate emission estimate. This information is coded in scientific notation. Columns 38-39 are coded with the significant figures of the emission parameter. Column 40 is used to indicate the scientific notation of the mixed number in columns 38-39. Column 41 is used to designate the exponent of the number. For example, a fuel with a lead content of .011 percent lead would be entered as follows:

Emission Parameter			
		+	−
38	39	40	41
1▲	1	-	2

The emission parameters for each SCC are in the HATREMS Point Source Emission Factor Table, Section 8.6.0 of AEROS Volume V, Manual of Codes.

Emission Parameter Method Code (Column 42)

The purpose of the emission parameter method code is to tell the user about the source of the emission parameter. Differentiations are made among fuel analysis, use of published source, and use of fuel supplier information. The emission parameter method codes are in Section 8.3.0 of Volume V, Manual of Codes.

Emissions (Column 43-47)

Hand calculated emissions may be entered in columns 43-47. Estimates should be in total tons per year and entered in scientific notation format. If a 3 (emissions computer-calculated using emission factors in HATREMS) is entered in the emissions method code, no value need be entered and the computer will calculate the emissions using an average emission factor value. If codes 1, 2, 4, or 5 are entered in the emissions method code field, then hand-calculated emissions must be coded in columns 43-47. If codes 6 or 7 are entered in the emissions method code field, enter a zero in column 47 indicating no emissions.

Emissions Method Code (Column 48)

The purpose of the emissions method code is to give the user information about the method used to calculate the emissions estimate. Differentiations are made among estimates based on source test, estimates based on engineering knowledge, estimates based on an emission factor, and estimates made by the computer. If the emissions field, columns 43-47, is left blank, a "3" must be coded in column 48. The emissions estimation method codes are in Section 8.1.0, Volume V, Manual of Codes.

Particulate Size Distribution Flag (Column 49)

The particulate size distribution flag code indicates whether or not particle sizing has been done on the emissions.

0 indicates that no particle sizing has been done.

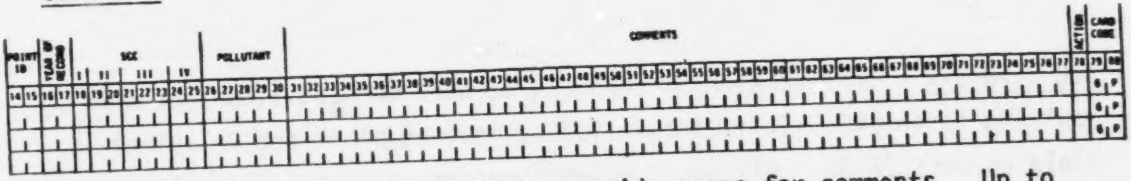
1 indicates that particle sizing has been done.

If a 1 is entered in column 49, an explanation of the results should be entered in the comments section of this card. This field is completed only if a stack test has been performed.

Comments (Columns 50-77)

A comments field is available for each pollutant entered on card FIVE. This field should be used to clarify the methods used to calculate the control efficiency, the emission parameter or the emission. Also when the flag code 1 is used, the comments section should give the name of the agency or company that performed the particle sizing measurements.

Card SIX


POINT ID
SCC
I
II
III
IV
POLLUTANT
COMMENTS
ACTION
CARD CODE
14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80
6 P
6 P
6 P

The purpose of card SIX is to provide space for comments. Up to three cards SIX may be entered for each emission point. Each card SIX with a complete identifier is associated with a specific card FIVE by the identifier is associated with a specific card FIVE by the identifier columns (columns 1-30). Columns 1 through 13 are always completed if Card SIX is used. Columns 14 through 30 are completed depending on whether comments refer to the plant, point, SCC, or pollutant level.

Comments - Column 31-77

Card SIX provides space for additional comments in columns 31 through 77, or 46 columns. There are four kinds (uses) of card SIX.

Plant Card SIX - This card is used for additional comments applying to the entire plant or facility. It is identified by leaving blank the Point ID field columns 14-15, the SCC field columns 18-25 of card SIX, and the Pollutant field columns 26-30 of card SIX. All other columns, except Comment field columns 31-77, should be filled out as per previous instructions on cards ONE and FIVE. Only one Plant Card SIX is allowed per Plant ID.

Point Card SIX - This version of card SIX is used for additional comments applying to a Point ID. It is identified by leaving blank the SCC field columns 18-25 and the Pollutant field columns 26-30. All other columns, except comment field columns 31-77, should be filled out as per previous instructions on card ONE and card FIVE. Only one Point Card SIX is allowed per Point ID.

SCC Card SIX - This version of Card SIX is used for additional comments applying to an SCC. It is identified by leaving blank the Pollutant field columns 26-30. All other columns except comment field columns

31-77 should be filled out as per previous instructions on Card ONE and Card FIVE. Only one SCC Card SIX is allowed per SCC.

Pollutant Card SIX - This version of card SIX is used for additional comments applying to a specific pollutant. It is identified by completing all columns except comment field columns 31-77 as per previous instructions. Only one Pollutant Card SIX is allowed per pollutant. Up to a total of three cards SIX are permitted on a single form per point ID.

The previous instructions in this section have provided the procedures that an engineer would need to code the emissions data that have been collected by questionnaire or permit. In order to permit the storage of data that have been correctly coded, a more complete explanation of the action codes is necessary. This will insure that data will not be rejected because the incorrect action code was utilized.

The point source file is updated by two procedures: (1) automatic updating from NEDS point source file, and (2) manual update of data that are coded on HATREMS point source forms. In order to utilize the correct action code, the engineer must be aware of the current data stored in both the NEDS and HATREMS point source files.

The automatic update from NEDS utilizes operating information from the NEDS point source file and the HATREMS point source emission factor file to calculate emissions. Emissions will be calculated for each SCC in NEDS that has an emission factor for a specific pollutant in the HATREMS point source emission factor file. Each time an automatic update is performed, the HATREMS point source file is completely recreated rather than the updating of specific records. The following formula is utilized to calculate the emissions during the automatic recreate:

$$M = \frac{OR \times EF \times DM \times \frac{100-W\left(\frac{Y}{100}\right)}{100}}{2000}$$

Where:

M = Emissions in T/Y

OR = Operating rate from NEDS

EF = Emission factor from HATREMS point source emission factor file

DM = Default multiplier from HATREMS point source emission factor file

W = NEDS control efficiency for the pollutant flagged

Y = Control efficiency multiplier from the HATREMS point source emission factor file

The data created by the automatic update is stored in a format similar to card 5 of the manual input form. All other data remains in NEDS and must be retrieved from NEDS to produce a point source report as described in Section 2.5.2 of Volume III.

The manual update combines the data that have been coded on the HATREMS point source form and the HATREMS point source file which was automatically created from NEDS data. This update creates data records similar to cards 1P-6P of the point source form and flags these records as being manually created. If all cards 1P-6P are not submitted, some missing data are retrieved from NEDS and also flagged as manual data. Once the records are flagged as manual data, the automatic update from NEDS will not change or delete these records from the HATREMS point source file.

The coder must be sure that the same key (State, county, AQCR, plant, point, SCC) is utilized for coding the HATREMS point source data as was utilized to initially enter the data into NEDS. Once the correct key has been utilized, the following guidelines should be utilized to select the correct action code for manual updates.

Delete Action Code

1.	Card 1P	Removes all information for the plant with specific key.
2.	Card 2P	Removes all information for the point with the specific key. If no other points exist for the plant, the plant information will be deleted.
3.	Card 3P	Rejects as an invalid transaction.
4.	Card 4P	Removes all information for the SCC with the specific key. If no other SCC exists for the point, the point will be deleted; and if no other points exist, the plant will be deleted.
5.	Card 5P	Removes all information for the pollutant with the specific key. If no other pollutant exist for the SCC, the SCC will be deleted. If no other SCC exists for the point, the point will be deleted; and if no other points exist, the plant will be deleted.
6.	Card 6P	Rejects as an invalid transaction.

Any delete for cards 1P, 2P, 4P and 5P will be rejected when the specific key can not be matched. Records which are manually deleted will be recreated by the automatic update from NEDS unless the plant, point, and/or SCC are deleted from NEDS.

Change Action Code

1. Cards 1P, 2P, 3P, 4P, & 6P Changes the individual data items that have been coded whenever the specified key is found. In order to be processed, the records must have been previously submitted as a manual update or must have been created from NEDS by the procedures discussed below.

2. Card 5P Changes the individual data items that have been coded whenever the key is found. If the record 5P was previously automatically created from NEDS, the data from cards 1P-4P will be retrieved from NEDS, stored in HATREMS, and flagged as manual data.

Any changes for cards 1P-6P will be rejected when the specific key can not be matched. Records which have been manually updated as changes will not be updated automatically from NEDS.

Add Action Code

1.	Card 1P	Added only if a complete set of cards 1P-5P are present as adds with the same key specified. All records will be flagged as manual data.
2.	Card 2P	Added only if a complete set of cards 2P-5P are present as adds with the same key. All records will be flagged as manual. If card 1P that is associated with cards 2P-5P does not exist, the data will be transferred from NEDS to HATREMS.
3.	Card 3P	Rejected as invalid when added independently. It must be added according to the restrictions discussed for cards 1P and 2P.
4.	Card 4P	Added only if at least one card 5P is present as an add for the same key and a specific pollutant. If cards 1P-3P that are associated with cards 4P and 5P do not exist as adds, the data will be transferred from NEDS to HATREMS and flagged as manual.
5	Card 5P	Added only if cards 1P-4P are present as adds, are present in the file as manual data, or the data can be transferred from NEDS to HATREMS. If the cards

1P-4P are transferred from NEDS, the data will be flagged as manual.

6. Card 6P Added only if cards 1P-5P are present as adds or are present in the file as manual data.

An add for cards 1P-5P will be rejected if the records exist on the file as manual data. For add transactions, multiple cards 4P, 5P, 6P may be submitted for a point as long as the complete key through SCC and/or pollutant is not duplicated.

JOB TITLE HATREMS AREA SOURCE INPUT FORM

CARD TYPE 1

	NAME OF FIELD	COLUMNS		NUMBER COLUMNS	PUNCH					VERIFY	REMARKS
		FROM	THRU		NUMERIC	ALPHA	LEFT JUSTIFY	RIGHT JUSTIFY	ZERO FILL		
1	State Code	1	2	2	X			X	X	X	
2	County Code	3	6	4	X			X	X	X	
3	AQCR	7	9	3	X			X	X	X	
4	ASC	10	11	2		X		X	X	X	
5	Pollutant Code	12	16	5		X		X	X	X	
6	Year of Record	17	18	2	X			X	X	X	
7	Source Rate	19	25	7	X			X	X	X	
8	Source Activity Factor	26	31	6	X			X	X	X	
9	Emissions	32	36	5	X			X	X	X	
10	Exp.										
	±		37	1		X				X	
	Digit		38	1	X					X	
11	Comments	39	77	39		X	X			X	
12	Action		78	1		X				X	
13	Card Type		79	1	X					X	Always '1'

JOB TITLE HATREMS AREA SOURCE INPUT FORM

CARD TYPE 1 (CONT'D.)

	NAME OF FIELD	COLUMNS FROM	COLUMNS THRU	NUMBER COLUMNS	PUNCH NUMERIC	PUNCH ALPHA	PUNCH LEFT JUSTIFY	PUNCH RIGHT JUSTIFY	PUNCH ZERO FILL	VERIFY	REMARKS
14	Form Type		80	1		X				X	Always 'A'

JOB TITLE HATREMS POINT SOURCE INPUT FORM

CARD TYPE 1

	NAME OF FIELD	COLUMNS FROM	COLUMNS THRU	NUMBER COLUMNS	PUNCH NUMERIC	PUNCH ALPHA	PUNCH LEFT JUSTIFY	PUNCH RIGHT JUSTIFY	PUNCH ZERO FILL	VERIFY	REMARKS
1	State Code	1	2	2	X			X	X	X	
2	County Code	3	6	4	X			X	X	X	
3	AQCR	7	9	3	X			X	X	X	
4	Plant ID	10	13	4		X		X	X	X	
5	City	14	17	4	X			X	X	X	
6	UTM Zone	18	19	2	X			X	X	X	
7	Year of Record	20	21	2	X			X	X	X	
8	Est. Name/Address	22	61	40		X	X				
9	Contact Personnel	62	73	12		X	X				
10	OWN		74	1		X				X	
11	Blank	75	77	3							
12	Action		78	1		X				X	
13	Card Type		79	1	X					X	Always '1'
14	Form Type		80	1		X				X	Always 'P'

JOB TITLE HATREMS POINT SOURCE INPUT FORM

CARD TYPE 2

	NAME OF FIELD	COLUMNS		NUMBER COLUMNS	PUNCH					VERIFY	REMARKS
		FROM	THRU		NUMERIC	ALPHA	LEFT JUSTIFY	RIGHT JUSTIFY	ZERO FILL		
1	State	1	2	2	X			X	X	X	
2	County	3	6	4	X			X	X	X	
3	AQCR	7	9	3	X			X	X	X	
4	Plant ID	10	13	4		X		X	X	X	
5	Point ID	14	15	2		X		X	X	X	
6	Year of Record	16	17	2	X			X	X	X	
7	SIC	18	21	4	X			X	X	X	
8	IPP Process	22	23	2	X			X	X	X	
9	UTM Coordinates										
	Horizontal km	24	27	4	X			X	X	X	
	Vertical km	28	32	5	X			X	X	X	
10	Stack Data										
	Height	33	36	4	X			X	X	X	
	Diameter	37	39	3	X			X	X	X	
	Temperature	40	43	4	X			X	X	X	

JOB TITLE HATREMS POINT SOURCE INPUT FORM

CARD TYPE 2 (CONT'D)

	NAME OF FIELD	COLUMNS		NUMBER COLUMNS	PUNCH					VERIFY	REMARKS
		FROM	THRU		NUMERIC	ALPHA	LEFT JUSTIFY	RIGHT JUSTIFY	ZERO FILL		
	Flow Rate	44	50	7	X			X	X	X	
	Plume Height	51	54	4	X			X	X	X	
11	Blank		55	1							
12	Points With Common Stack	56	59	4		X		X	X	X	
13	Blank	60	77	18							
14	Action		78	1		X				X	
15	Card Type		79	1	X					X	Always '2'
16	Form Type		80	1		X				X	Always 'P'

JOB TITLE HATREMS POINT SOURCE INPUT FORM

CARD TYPE 3

	NAME OF FIELD	COLUMNS		NUMBER COLUMNS	PUNCH					VERIFY	REMARKS
		FROM	THRU		NUMERIC	ALPHA	LEFT JUSTIFY	RIGHT JUSTIFY	ZERO FILL		
1	State	1	2	2	X			X	X	X	
2	County	3	6	4	X			X	X	X	
3	AQCR	7	9	3	X			X	X	X	
4	Plant ID	10	13	4		X		X	X	X	
5	Point ID	14	15	2		X		X	X	X	
6	Year of Record	16	17	2	X			X	X	X	
7	Control Equipment										
	First	18	20	3	X			X	X	X	
	Second	21	23	3	X			X	X	X	
	Third	24	26	3	X			X	X	X	
8	Annual Thruput										
	Dec-Feb	27	28	2	X			X	X	X	
	Mar-May	29	30	2	X			X	X	X	
	June-Aug	31	32	2	X			X	X	X	
	Sept-Nov	33	34	2	X			X	X	X	

JOB TITLE HATREMS POINT SOURCE INPUT FORM

CARD TYPE 3 (CONT'D.)

	NAME OF FIELD	COLUMNS		NUMBER COLUMNS	PUNCH					VERIFY	REMARKS
		FROM	THRU		NUMERIC	ALPHA	LEFT JUSTIFY	RIGHT JUSTIFY	ZERO FILL		
9	Normal Operating										
	Hr/Day	35	36	2	X			X	X	X	
	Day/Wk		37	1	X					X	
	Wk/Yr	38	39	2	X			X	X	X	
10	Comments	40	77	38		X	X			X	
11	Action		78	1		X				X	
12	Card Type		79	1	X					X	Always '3'
13	Form Type		80	1		X				X	Always 'P'

JOB TITLE HATREMS POINT SOURCE INPUT FORM

CARD TYPE 4

	NAME OF FIELD	COLUMNS FROM	COLUMNS THRU	NUMBER COLUMNS	PUNCH NUMERIC	PUNCH ALPHA	PUNCH LEFT JUSTIFY	PUNCH RIGHT JUSTIFY	PUNCH ZERO FILL	VERIFY	REMARKS
1	State	1	2	2	X			X	X	X	
2	County	3	6	4	X			X	X	X	
3	AQCR	7	9	3	X			X	X	X	
4	Plant ID	10	13	4		X		X	X	X	
5	Point ID	14	15	2		X		X	X	X	
6	Year of Record	16	17	2	X			X	X	X	
7	SCC										
	I		18	1	X					X	
	II	19	20	2	X			X	X	X	
	III	21	23	3	X			X	X	X	
	IV	24	25	2	X			X	X	X	
8	Operating Rate	26	32	7	X			X	X	X	
9	Max. Design	33	39	7	X			X	X	X	
10	Hourly Average	40	46	7	X			X	X	X	
11	Growth Projection										

JOB TITLE HATREMS POINT SOURCE INPUT FORM

CARD TYPE 4 (CONT'D.)

	NAME OF FIELD	COLUMNS		NUMBER COLUMNS	PUNCH					VERIFY	REMARKS
		FROM	THRU		NUMERIC	ALPHA	LEFT JUSTIFY	RIGHT JUSTIFY	ZERO FILL		
	10 year	47	49	3		X		X	X	X	
	20 year	50	52	3		X		X	X	X	
12	Comments	53	77	25		X	X			X	
13	Action		78	1		X				X	
14	Card Type		79	1	X					X	Always '4'
15	Form Type		80	1		X				X	Always 'P'

JOB TITLE HATREMS POINT SOURCE INPUT FORM

CARD TYPE 5

	NAME OF FIELD	COLUMNS		NUMBER COLUMNS	PUNCH					VERIFY	REMARKS
		FROM	THRU		NUMERIC	ALPHA	LEFT JUSTIFY	RIGHT JUSTIFY	ZERO FILL		
1	State	1	2	2	X			X	X	X	
2	County	3	6	4	X			X	X	X	
3	AQCR	7	9	3	X			X	X	X	
4	Plant ID	10	13	4		X		X	X	X	
5	Point ID	14	15	2		X		X	X	X	
6	Year of Record	16	17	2	X			X	X	X	
7	SCC										
	I		18	1	X					X	
	II	19	20	2	X			X	X	X	
	III	21	23	3	X			X	X	X	
	IV	24	25	2	X			X	X	X	
8	Pollutant	26	30	5		X				X	
9	Analytical Method		31	1		X				X	
10	Control Efficiency	32	36	5	X			X	X	X	
11	Method		37	1	X					X	

JOB TITLE HATREMS POINT SOURCE INPUT FORM

CARD TYPE 5 (CONT'D.)

	NAME OF FIELD	COLUMNS		NUMBER COLUMNS	PUNCH					VERIFY	REMARKS
		FROM	THRU		NUMERIC	ALPHA	LEFT JUSTIFY	RIGHT JUSTIFY	ZERO FILL		
12	Emission Parameter										
	Content	38	39	2	X			X	X	X	
	±		40	1		X				X	
	Digit		41	1	X					X	
13	Method		42	1	X					X	
14	Emission										
	Ton/Yr	43	45	3	X			X	X	X	
	±		46	1		X					
	Digit		47	1	X					X	
15	Method		48	1	X					X	
16	Particulate Flag		49	1	X					X	
17	Comments	50	77	28		X	X			X	
18	Action		78	1		X				X	
19	Card Type		79	1	X					X	Always '5'
20	Form Type		80	1		X				X	Always 'P'

JOB TITLE HATREMS POINT SOURCE INPUT FORM

CARD TYPE 6

	NAME OF FIELD	COLUMNS		NUMBER COLUMNS	PUNCH					VERIFY	REMARKS
		FROM	THRU		NUMERIC	ALPHA	LEFT JUSTIFY	RIGHT JUSTIFY	ZERO FILL		
1	State	1	2	2	X			X	X	X	
2	County	3	6	4	X			X	X	X	
3	AQCR	7	9	3	X			X	X	X	
4	Plant ID	10	13	4		X		X	X	X	
5	Point ID	14	15	2		X		X	X	X	
6	Year of Record	16	17	2	X			X	X	X	
7	SCC										
	I		18	1	X					X	
	II	19	20	2	X			X	X	X	
	III	21	23	3	X			X	X	X	
	IV	24	25	2	X			X	X	X	
8	Pollutant	26	30	5		X		X	X	X	
9	Comments	31	77	47		X	X			X	
10	Action		78	1		X				X	
11	Card Type		79	1	X					X	Always '6'

JOB TITLE HATREMS POINT SOURCE INPUT FORM

CARD TYPE 6 (CONT'D.)

	NAME OF FIELD	COLUMNS FROM THRU	NUMBER COLUMNS	PUNCH NUMERIC	PUNCH ALPHA	PUNCH LEFT JUSTIFY	PUNCH RIGHT JUSTIFY	PUNCH ZERO FILL	VERIFY	REMARKS
12	Form Type	80	1		X				X	Always 'P'

This section is included to review the data processing procedures from the initial collection of data through the submittal of data to EPA Regional Offices. Although the following individual sections will address the processing of NEDS and SAROAD data, similar procedures should be followed in processing data for State systems or the individual sub-systems of the Comprehensive Data Handling System.

These procedures are an attempt to transfer the knowledge which has been gained by the National Air Data Branch from data processing, data evaluation, error identification, and error resolution to State and local agencies.

Emissions data are estimates of the amount of pollution generated by a specific source or industrial process. Although emissions data may be collected and calculated on a daily or hourly basis, emissions data which are reported for NEDS purposes represent annual emission estimates based on source operating characteristics or based on extrapolation of source test data.

To compile an emissions inventory, the control agency must collect the operating information from individual plants or point sources through a permit or registration system. In some cases when sources are not covered by the permit or registration system, the control agency may collect data by supplemental emission inventory questionnaires.

The original NEDS emission inventories were compiled by the conversion of operating information which was gathered by permit or registration systems or supplemental questionnaires. As changes in the source operating characteristics are reflected in the permit or questionnaires, this data must be updated in the emission inventory.

To update an emission inventory, the current permit or registration forms or supplementary questionnaires for the sources and an output showing the current status of the existing NEDS inventory must be utilized. This output could include a NEDS point source listing for each source, a NEDS plant name report which shows the plant name and number, or a report from the State compatible system. To actually update the emission inventory, Section 2.1.2 should be reviewed to identify which sources must be reported according to EPA regulations, Section 3.1.2 should be reviewed for coding procedures, and AEROS Volume V must be utilized for the specific codes.

Since the current NEDS point source file will be updated with information from the permit or other data source, the identifiers (State, county, AQCR, plant, point, SCC) which exist for the specific plant, point, and process must be utilized. The correct transaction code must also be utilized to insure that data will be added to, changed, or deleted from the existing NEDS file. An add transaction code is utilized to add a new plant, point, and process. If a new plant is added, a new plant identifier is assigned, if a new point is added to an existing plant, the existing plant identifier is utilized and a new point identifier is assigned. If a new process is added to an existing point, the point identifier is utilized and the correct SCC is assigned. A change transaction is utilized to update existing data in the file, and the existing identifier must be utilized. A delete transaction is utilized to delete existing data from the file, and the existing identifier must be utilized.

After the data have been coded utilizing the permit file and existing NEDS data, the coding forms should be reviewed by another engineer who is familiar with NEDS and data processing. The specific validation checks should include:

1. Checking to insure that the identifier and action code are coded correctly.

2. Checking to insure that all cards are coded for an add, that a change card contains some coded data, and that only cards 1, 2 or 6 are coded for deletes.

3. Checking to insure that only valid codes are utilized.

4. Checking to insure that all numeric fields are right justified and numeric only.

5. Checking to insure that information is coded in the correct fields.

The engineer should also perform some data consistency checks to insure that the data are compatible. These checks should include:

1. Checking to insure both control equipment and efficiency are coded.

2. Checking to insure that the boiler design capacity and SCC are consistent, and that the boiler SCC is consistent with fuel characteristics, maximum design rate and annual operating rate.

3. Checking to insure that the estimated emissions and estimation methods are consistent.

Any problems which are identified by the screening should be corrected before keypunching.

The above validation and consistency checks are only a few of the computerized edits which are performed by the NEDS Editor program in the Regional Office. To minimize rejections by the editor, the coder and reviewer should be familiar with the NEDS edits as described in Section 7.1.1. The reviewer should implement any additional screening procedures as practical based on the NEDS edits. Section 7.1.1 should also be utilized by the coder and reviewer as a reference when correcting rejects and warnings which have been received from the Regional Office.

After the coding forms have been validated and initialed by the checker, the keypunching instructions which are included in Section 4.1.2 should be followed. Forms are subject to being lost, therefore a photocopy should be made, but the original should be utilized for keypunching. As indicated by the keypunch instructions, all keypunching must be verified to insure that no errors were made. The verification process must be done by a different keypunch operator than punched the original cards. The separate operator must utilize the forms and the keypunched cards and repunch the cards in the verification option of the keypunch machine. The machine will identify any difference between the card and the information punched by the second operator. Any differences must be corrected.

The data may be submitted as forms, cards or magnetic tape based on the agreement made between the Regional Office and the submitting agency. Each agency must submit a 'NEDS State Transmittal Form', Figure 6.3.1-a with each submittal. Section 5.3.1 describes the procedures to utilize to submit cards, forms, or tapes.

This chapter will present an overview of the recommended procedures to be followed from the establishment of a site to the reporting of air quality data to the Regional Office in SAROAD format.

An air monitoring site is established as part of the State Air monitoring network to meet the data needs of the State and EPA. The data requirements will determine the pollutants monitored and sampling procedures. The individual pollutants which are monitored will result in the site being located to meet the siting guidelines which have been developed by U. S. Environmental Protection Agency.

After a site has been located, the information is collected to describe the environment of the site. If the air quality data which are collected at the site are to be reported to NADB, the SAROAD site identification form must be coded to register the site. This registration must include a separate site registration for each different agency and/or monitoring project. As the environment of the site changes, these changes must be updated on the site file. If a site location is changed, the new location must be registered with a SAROAD site identification form as a new site.

To facilitate data reporting and validation the following listings should be compiled: (1) site list and (2) pollutant-method list. A separate site list should be compiled for each pollutant monitored. This list should include the collection and analysis method as well as the start and/or end dates for monitoring at the site. The pollutant-method list should be maintained for each pollutant and collection and analysis method which is utilized. This list should include the following information by pollutant-method: (1) reporting units and code, (2) sampling interval code, (3) standard decimal point locator, (4) minimum detectable limit, (5) a maximum expected value, and (6) name and method code of the collection and analysis method.

The actual data coding and processing begins when data from the reduced strip charts have been received or when the data from the field and laboratory analysis have been received. As the data are received for coding, the data forms must be checked to insure that the identifiers (site code, pollutant-method code, sampling interval, reporting units, and year, month, day, hour) are included for the data values. As data are received, coding will be done utilizing SAROAD Forms 1, 2, or 3, utilizing the coding instructions given in Section 3.4 and utilizing the codes contained in AEROS Volume V, Manual of Codes. The site list should be checked to insure that the site pollutant combination is valid. The pollutant method list should be checked to insure that the method is correct, that the units are consistently reported from month to month, and that the sampling interval code and decimal point indicator are correct. Any values which are higher than the maximum expected value should be evaluated and values which are lower than the minimum detectable should be coded as '0000'.

After the data have been coded, another person should review the coding forms to insure that the correct codes have been utilized for all fields, that all coding is legible and clear, and that data values are correctly coded. This review may only include a random sample of the forms rather than all forms, however the reviewed forms should be initialed by the checker.

The above checks are only a few of the computerized edits which are performed by the SAROAD Editor in the Regional Office. To minimize rejections by the editor, the coder and reviewer should be familiar with the SAROAD edits as described in Section 7.1.2. The reviewer should implement any additional screening procedures as practical based on the SAROAD edits.

After the above inspection has been complete and any corrections made, the forms should be ready for keypunching. Forms are subject to being lost, therefore a photocopy should be made, but the originals should be utilized for keypunching. The keypunch instructions as given in Sections 4.4.1 to 4.4.6 should be followed. As indicated by the keypunch instructions, all keypunching must be verified to insure that no keypunch errors are made. The verification process must be done by a different keypunch operator than punched the original cards. The separate operator must utilize the forms and the keypunched cards and repunch the cards in the verification option of the keypunch machine. The machine will identify any difference between the card and the information punched by the second operator. All differences must be corrected.

After the data have been keypunched and can be analyzed by computer techniques, two additional checks are recommended. The first check is to process the data with the validation techniques which are presented in Guideline Series, OAQPS NO. 1.2-092, "Guidelines for Screening Procedures For Ambient Air Quality Data." The second check is to list the data and perform another manual review to insure that no consistent keypunch errors were made. This second check may not be possible for large volumes of data, but the first check should be implemented for all data. After any errors which were identified have been corrected, the data should be ready for submission to the Regional Office.

The submission of data must be in SAROAD format in the medium (forms, cards, tapes) which has been agreed to by the Regional Office. Again, to insure that data are not lost, duplicate records should be maintained until the data have been processed by the Regional Office. Each submission of data must include a 'SAROAD State Transmittal Form' (Figure 6.3.2-a), 'Magnetic Tape File Transmittal Form' (Figure 6.3.3-a) with each tape file, and 'Data Not Submitted With Quarterly Report' (Figure 6.3.2-b) to document missing data.

Since the SAROAD Forms do not contain an update action code, data must be segregated by action code and this action code must be specified on the SAROAD State Transmittal Form. Data with an incorrect action code will be rejected in the update. Data must be submitted as adds when the data are initially submitted, as changes to correct data values stored on the data bank, or as deletes to remove invalid data from the data bank. If processed as an add, or change a value of '9999' will be ignored. If processed as a delete, a value of '9999' will delete the value. If processed as a change with the delete option, a value of '9999' will delete the existing value.

The submission of NEDS or SAROAD Data must be in the medium (form, cards, tapes) which has been agreed to by the Regional Office. Of the three forms, magnetic tape is the easiest to submit as long as the tape format is compatible.

The following guidelines must be followed in submitting magnetic tapes:

1. The tape must be a 0.5 inch wide magnetic tape with 7 or 9 tracks and a recording density of 556, 800, or 1600 bits per inch.

2. A 'Magnetic Tape Transmittal Form' (Figure 6.3.3-a) must be submitted for each data set. This must include all information completed on the form to describe the characteristics of the tape and must be correct to insure that the data will be processed.

3. The data on the tape must be in NEDS or SAROAD format which includes a record length of 80 characters per record. The block size must be specified on the transmittal form.

4. The tape must have a return address label and an identification number attached.

5. Each tape should be individually packaged, addressed, and labeled 'Do Not X-ray'.

The following guidelines must be followed in submitting computer cards:

1. Cards should be submitted, sorted by site, pollutant, and date for SAROAD or by state, county, plant, point for NEDS.

2. Cards must be packaged to prevent damage by mail. Cards should be mailed in the individual boxes in which they were purchased which contains 1500-2000 cards. These boxes should be full of cards or filled with waste paper to prevent movement. The box should be taped securely with fiber tape to insure that it is not damaged. Multiple boxes should be numbered 1 of 5, 2 of 5, etc.

3. For SAROAD, cards must be segregated by action code.

The following guidelines must be followed in submitting forms:

1. The forms must be the original copy not a photocopy.

2. Forms must be sorted by site, pollutant, and date for SAROAD and state, county, plant, point for NEDS. Forms must be numbered.

3. Forms must be packaged in a box to prevent damage during shipment.

4. For SAROAD, forms must be segregated by action code.

PURPOSE

The NEDS Control Log (Figure 6.2.1-a) can be used by Regional Office personnel to provide an overview of the flow of NEDS data through the Regional Office. Information recorded here is concerned principally with interaction with submitting state agencies and the National Air Data Branch (NADB) and with resolution of errors found. Information on processing steps within the Regional Office is recorded on the NEDS Batch Sheet (see 7.2.1), referenced by the R.O. Identification Number for each data submission. Although it can be used as a running log of NEDS data submissions, the NEDS Control Log's overview function can be better served if it is organized by year, with all states on a single page.

This form should be modified as appropriate to reflect Regional Office needs, including elimination of any unneeded columns and addition of any columns which may be useful. For example, the form could be expanded to legal size and several columns added at the double vertical line to reflect interaction between administrative and data processing groups in the Regional Offices.

PROCEDURE

The NEDS Control Log (Figure 6.2.1-a) is completed as follows. Each paragraph represents a specific step in Regional Office NEDS activities.

Receipt by Regional Office: Upon initial receipt of a NEDS data submission, R.O. personnel should fill out the first six columns of the log:

NEDS CONTROL LOG FOR 19 _ _

STATE	DESCRIPTION	FORMS/CARDS/TAPE	DATE REC'D	R.O. I.D.	RECEIPT LETTER TO STATE*	TAPE TO NCC*/B-NO.	LISTINGS TO STATE*	ERROR RESOLUTION				NADB CONTROL I.D.	NADB UPDATE NUMBER/COMPLETE DATE*	DATA TO STATE*	TAPE FROM NCC*	TAPE TO STATE*
								NEW R.O. I.D.	BY R.O.	BY STATE	DATE COMPLETE*					

*DATES

Figure 6.2.1-a. NEDS Control Log.

- STATE or local agency submitting.
- DESCRIPTION of the data included. Should distinguish data from other data submitted. Can be taken from NEDS State Transmittal Form (6.3.1).
- FORMS/CARDS/TAPE. Indicate with F, C, or T the media in which data was received.
- DATE REC'D. Enter date of receipt.
- R.O. I.D. Create and enter a Regional Office Identification Number (R.O. I.D.) for this submittal. Suggested form is
  __ __ __ , e.g., AL7701.
  State Year Batch
- RECEIPT LETTER TO STATE. Enter date on which letter of receipt was sent to submitting state or local agency (see 6.4.1).

Mailing of Tape to NCC: If magnetic tape submitted is mailed to NCC, enter the date of mailing and the NCC B-Number assigned.

Mailing of Listings to State or Local Agency: Date should be entered if any listings from NEDS processing steps are sent for information or error correction purposes.

Error Resolution: The new R.O. I.D. assigned to each group of errors from an original submission should be recorded with entries for that submission, and a check should be entered in the BY STATE or BY R.O. column to indicate the party responsible for resolving that group of errors. (See 6.5.1)

Completion of Error Resolution: The date on which re-processing of a group of errors is begun should be entered under DATE COMPLETE.

NADB Notified of Data Availability: When the Regional Office has completed NEDS processing and notifies NADB of the availability of the processed data, the NADB Control I.D. for that submission is obtained and recorded.

Verification of Update: When Regional Office personnel verify that a submission has been updated via the AERO-MESSAGE file or the NADB Code-a-Phone, the NADB Update Number and date should be entered.

Reports Sent to State or Local Agency: The date should be recorded if any reports are run and forwarded to the submitting agency.

Return of Tape from NCC: The date should be entered when magnetic tapes are returned from NCC for forwarding to submitting agency.

Tape Sent to State or Local Agency: The date on which tapes are mailed back to the submitting agency should be noted here.

PURPOSE

The SAROAD Control Log (Figure 6.2.2-a) can be used by Regional Office personnel to provide an overview of the flow of SAROAD data through the Regional Office. Information recorded here is concerned principally with interaction with submitting state agencies and the National Air Data Branch (NADB) and with resolution of errors found. Information on processing steps within the Regional Office is recorded on the SAROAD Batch Sheet (see 7.2.2), referenced by the R.O. Identification Number for each data submission. Although it can be used as a running log of SAROAD data submissions, the SAROAD Control Log's overview function can be better served if it is organized by quarter, with all states on a single page. This may be especially useful to personnel assessing compliance with SIP reporting requirements.

This form should be modified as appropriate to reflect Regional Office needs, including elimination of any unneeded columns and addition of any columns which may be useful. For example, the form could be expanded to legal size and several columns added at the double vertical line to reflect interaction between administrative and data processing groups in the Regional Office.

PROCEDURE

The SAROAD Control Log (Figure 6.2.2-a) is completed as follows. Each paragraph represents a specific step in Regional Office SAROAD activities.

SAROAD CONTROL LOG FOR ______ 19_ _
Qtr

								ERROR RESOLUTION								
STATE	DESCRIPTION	FORMS/CARDS/TAPE	DATE REC'D	R.O. I.D.	RECEIPT LETTER TO STATE*	TAPE TO NCC*/B-NO.	LISTINGS TO STATE*	NEW R.O. I.D.	BY R.O.	BY STATE	DATE COMPLETE*	NADB CONTROL I.D.	NADB UPDATE NUMBER/COMPLETE DATE*	DATA TO STATE*	TAPE FROM NCC*	TAPE TO STATE*

*DATES

Figure 6.2.2-a. SAROAD Control Log.

Receipt by Regional Office: Upon initial receipt of a SAROAD data submission, R.O. personnel should fill out the first six columns of the log:

- STATE or local agency submitting.
- DESCRIPTION of the data included. Should distinguish data from other data submitted. Can be taken from SAROAD State Transmittal Form (6.3.2).
- FORMS/CARDS/TAPE. Indicate with F, C, or T the media in which data was received.
- DATE REC'D. Enter date of receipt.
- R.O. I.D. Create and enter a Regional Office Identification Number (R.O. I.D.) for this submittal. Suggested form is
  __ __ _ __ , e.g., AL77301.
  State Year Qtr Batch
- RECEIPT LETTER TO STATE. Enter date on which letter of receipt was sent to submitting state or local agency (see 6.4.2).

Mailing of Tape to NCC: If magnetic tape submitted is mailed to NCC, enter the date of mailing and the NCC B-Number assigned.

Mailing of Listings to State or Local Agency: Date should be entered if any listings from SAROAD processing steps are sent for information or error correction purposes.

Error Resolution: The new R.O. I.D. assigned to each group of errors from an original submission should be recorded with entries for that submission and a check should be entered in the BY STATE or BY R.O. column to indicate the party responsible for resolving that group of errors. (See 6.5.2)

Completion of Error Resolution: The date on which re-processing of a group of errors is begun should be entered under DATE COMPLETE.

NADB Notified of Data Availability: When the Regional Office has completed SAROAD processing and notifies NADB of the availability of the processed data, the NADB Control I.D. for that submission is obtained and recorded.

Verification of Update: When Regional Office personnel verify that a submission has been updated via the AERO-MESSAGE file or the NADB Code-a-Phone, the NADB Update Number and date should be entered.

Reports Sent to State or Local Agency: The date should be recorded if any reports are run and forwarded to the submitting agency.

Return of Tape from NCC: The date should be entered when magnetic tapes are returned from NCC for forwarding to submitting agency.

Tape Sent to State or Local Agency: The date on which tapes are mailed back to the submitting agency should be noted here.

PURPOSE

The SAROAD Site File Log (Figure 6.2.3-a) can provide a running inventory, by state, of changes and additions to the SAROAD Site File requested by state and local agencies and of progress toward successful entry on the site file. Use by Regional Office personnel will create a positive record of all Site File actions and help with any problems due to changes in SAROAD Site I.D. Steps in Site File updating at which entries should be made are noted below.

Initial Receipt: The first three columns (DATE, SITE ADDRESS and NEW OR REVISED) should be entered with the date, the address of each site (or reference to an attached list) and "N" or "R" for new sites or revisions to existing sites. If the SAROAD Site I.D. already exists or has been assigned by the submitting agency, that column should be filled out at this point.

Assign SAROAD Site I.D.: The I.D. assigned to each submitted site should be entered here upon determination.

Submission to NADB: Date of mailing should be entered under CARDS TO NADB.

Obtain NADB Control I.D.: When assigned by NADB personnel upon receipt of a Site File submission, the NADB Control I.D. should be obtained and recorded.

______to______*

SAROAD SITE FILE LOG: ______
(State)

DATE REC'D*	SITE ADDRESS	NEW OR REV	SAROAD I.D. ASSIGNED	CARDS TO NADB*	NADB CONTROL I.D.	UPDATED AT NADB*	VERIFIED ON SITE FILE*	COMMENTS

*DATES

Figure 6.2.3-a. SAROAD Site File Log .

NADB Update: Using the appropriate NADB Control I.D., Regional Office personnel should monitor Site File updates via the NADB Code-a-Phone or AERO-MESSAGE file and record the date of the update containing the submitted Control I.D., as initial verification of the validity of those Site I.D.s. If any sites are rejected during the NADB update, a rejects list will be forwarded to the Regional Office. Each rejected site and details of resubmission should be noted in the Comments column.

Verify Submittals or Site File: After a new master copy of the Site File is run by Regional Office personnel, all previously-submitted Site I.D.s should be checked to verify their correct entry and the date of this verification entered in the last column on the SAROAD Site File Log.

PURPOSE AND USE

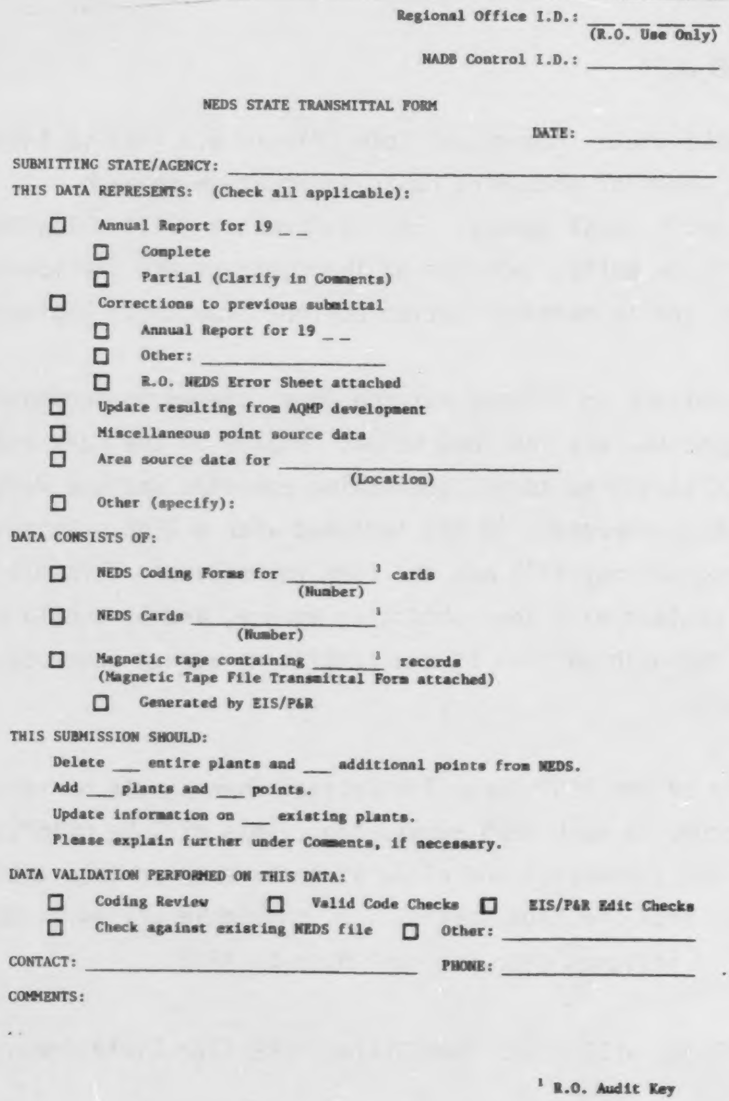
The NEDS State Transmittal Form (Figure 6.3.1-a) is intended as a convenient means of obtaining basic information on each NEDS submittal from a state or local agency. This information will allow Regional Office personnel to be better informed on the contents and implications of NEDS submissions and to maintain better control over their Region's NEDS file.

Instructions on filling out the Form, geared to personnel in submitting agencies, are included below. Copies of the Form and instructions should be distributed to all submitting agencies and use with all NEDS submissions encouraged. If not included with a NEDS submission, Regional Office personnel may fill out the Form themselves. This may require telephone contact with the submitting agency, and it should prove more efficient for both parties if the submitting agency generates the Form to begin with.

A copy of the NEDS State Transmittal Form should be forwarded to NADB to accompany each NEDS submission. This will be helpful in NADB review of the submission and allow it to be entered into NEDS in a more timely fashion. The NADB Control I.D. should be filled in by R.O. personnel if assigned over the telephone by NADB.

FILLING OUT THE NEDS STATE TRANSMITTAL FORM (For State Agency Personnel)

One NEDS State Transmittal Form should be filled out for each NEDS data submission sent to the EPA Regional Office, and a copy kept for your records. Use of this form will aid the Regional Office and the National Air Data Branch (NADB) in their processing steps, and eliminate the need



Regional Office I.D.: __ __ __ __
(R.O. Use Only)

NADB Control I.D.: __________

NEDS STATE TRANSMITTAL FORM

DATE: __________

SUBMITTING STATE/AGENCY: ____________________

THIS DATA REPRESENTS: (Check all applicable):

- ☐ Annual Report for 19 _ _
  - ☐ Complete
  - ☐ Partial (Clarify in Comments)
- ☐ Corrections to previous submittal
  - ☐ Annual Report for 19 _ _
  - ☐ Other: __________
  - ☐ R.O. NEDS Error Sheet attached
- ☐ Update resulting from AQMP development
- ☐ Miscellaneous point source data
- ☐ Area source data for __________ (Location)
- ☐ Other (specify):

DATA CONSISTS OF:

- ☐ NEDS Coding Forms for _____[1] cards (Number)
- ☐ NEDS Cards __________[1] (Number)
- ☐ Magnetic tape containing _____[1] records (Magnetic Tape File Transmittal Form attached)
  - ☐ Generated by EIS/P&R

THIS SUBMISSION SHOULD:

Delete ___ entire plants and ___ additional points from NEDS.
Add ___ plants and ___ points.
Update information on ___ existing plants.
Please explain further under Comments, if necessary.

DATA VALIDATION PERFORMED ON THIS DATA:

☐ Coding Review ☐ Valid Code Checks ☐ EIS/P&R Edit Checks
☐ Check against existing NEDS file ☐ Other: __________

CONTACT: ____________________ PHONE: __________

COMMENTS:

[1] R.O. Audit Key

Figure 6.3.1-a. NEDS State Transmittal Form.

for personal communication of this type of information. Inclusion of the reasons for any unusual or special submission will help to reduce processing delays at the Regional Office and NADB. Processing of magnetic tape submissions will also be facilitated by attachment of the Magnetic Tape File Transmittal Form, with details on tape characteristics and other necessary information.

Instructions

Fill out the NEDS State Transmittal Form in as much detail as possible, checking all blocks that apply and filling in all relevant blanks, according to the steps below.

1. Enter date of submission and the name of your agency (leave "Regional Office I.D." and "NADB Control I.D." blank).

2. Check all applicable blocks under "THIS DATA REPRESENTS." Most submittals will fall under "Annual Report" or "Corrections to previous submittal." Indicate under "COMMENTS" (1) how submission is arranged if multiple categories are included, (2) previous communication with EPA Regional Office on this set of data (e.g., discussion of data to be corrected), (3) what is included and what will follow and when (in case of partial Annual Report submissions) and (4) any other information required to describe or distinguish the submission.

3. Indicate the form of the submitted data under "DATA CONSISTS OF,"

including card counts for data submitted on NEDS Forms or Cards and record counts for data on magentic tape. Ignore superscripts (these are for R.O. use). Complete and attach one Magnetic Tape File Transmittal Form (MTFTF) for each file in magnetic tape submittals. (Fill all relevant spaces, leave "R.O. Control #" blank.) See separate MTFTF instructions, AEROS Manual Vol. II, 6.3.3.

4. Obtain and enter counts required under "THIS SUBMISSION SHOULD." Since this information will be used to review the effect of the submission on the NEDS file for your state, it should be checked for accuracy and any atypical submissions (e.g., deletion of major or numerous facilities) should be explained in "COMMENTS."

5. Check all types of "DATA VALIDATION PERFORMED ON THIS DATA," and include any other steps taken under "Other."

6. Enter name and telephone number of a person who can be contacted for further information on this submission, and any further comments.

PURPOSE AND USE

The SAROAD State Transmittal Form (Figure 6.3.2-a) is intended as a convenient means of obtaining basic information on each SAROAD submittal from a state or local agency. This information will allow Regional Office personnel to be better informed as to the contents and implications of SAROAD submissions and to maintain better control over the Region's SAROAD file.

Instructions on filling out the Form, geared to personnel in submitting agencies, are included below. Copies of the Form and instructions should be distributed to all submitting agencies and use with all SAROAD submissions encouraged. If not included with a SAROAD submission, this Form can be filled out by Regional Office personnel. This may require telephone contact with the submitting agency, and it should prove more efficient for both parties if the submitting party generates the Form to begin with.

A copy of the SAROAD State Transmittal Form should be forwarded by the Regional Office to NADB to accompany each SAROAD submission, to expedite NADB processing of the submission. The NADB Control I.D. should be filled in by R.O. personnel if assigned over the telephone by NADB.

FILLING OUT THE SAROAD STATE TRANSMITTAL FORM (For State Agency Personnel)

One SAROAD State Transmittal Form should be filled out for each SAROAD data submission sent to the EPA Regional Office, and a copy kept for your records. Use of this form will aid the Regional Office and the National Air Data Branch (NADB) in their processing steps, and eliminate

Regional Office I.D.: ___ ___ ___ ___
(R.O. Use Only)
NADB Control I.D.: ________

SAROAD STATE TRANSMITTAL FORM
(One Per File Submitted)

DATE: ________
SUBMITTING STATE OR AGENCY: ________
AIR QUALITY DATA FOR: ________ QUARTER, 19 ____.
OR OTHER PERIOD: ________.
OTHER DISTINGUISHING DESCRIPTION (continuous/noncontinuous, pollutant, method, etc.):
____

THIS DATA REPRESENTS:

- ☐ Complete Quarterly Report (original submission)
- ☐ Partial Quarterly Report
  - Remainder: ☐ already submitted
  - ☐ to be submitted (Fill out "Data Not Submitted with Quarterly Report" Form for data yet to be submitted.)
  - ☐ responsibility of other delegated agency
- ☐ Corrections to previous submittal for time period noted above
  - ☐ R.O. SAROAD Error Sheet attached
  - ☐ Other origin: ________

DATA CONSISTS OF:

- ☐ SAROAD Coding Forms Count = ____/____/____[1] (Total/Daily/Continuous)
- ☐ SAROAD Cards Total Cards: ________[2]
- ☐ Magnetic Tape Records: ________[2] (Attach Magnetic Tape File Transmittal Form.)
  - ☐ Generated by AQDHSII

DATA VALIDATION PERFORMED ON THIS DATA:

☐ Coding Review ☐ Valid Code Checks ☐ AQDHSII Edit Checks
☐ High Value Checks ☐ Other Statistical Tests: ________
☐ Other ________

ACTION CODE: ☐ Add ☐ Change ☐ Delete

CONTACT: ________ PHONE: ________

COMMENTS/CLARIFICATION:

[1,2] R.O. Audit Keys

Figure 6.3.2-a. SAROAD State Transmittal Form.

the need for personal communication of this type of information. Inclusion of the reasons for any unusual or special submission will help to reduce processing delays at the Regional Office and NADB. Processing of magnetic tape submissions will also be facilitated by attachment of the Magentic Tape File Transmittal Form, with details on tape characteristics and other necessary information.

Instructions

Fill out the SAROAD State Transmittal Form in as much detail as possible, checking all blocks that apply and filling in all relevant blanks, according to the steps below.

1. Enter date of submission and the name of your agency (leave "Regional Office I.D." blank). Indicate the quarter and year or other period during which this data was collected, and add, under "OTHER DISTINGUISHING DESCRIPTION," any information necessary to tell this submission from others for the same period (e.g., continuous vs. noncontinuous).

2. Check all applicable blanks under "THIS DATA REPRESENTS." If this is the first submission of a full quarterly report (all anticipated data for all stations operating), check "Complete Quarterly Report." Check "Partial Quarterly Report" for all first submissions of data which do not include all data you expect to be reported for your state (by your agency and/or other delegated state or local agencies) for the quarter

entered above. Data not submitted with partial quarterly submittals which cannot be adequately described on this Form should be listed by site, etc., on the "Data Not Submitted with Quarterly Report" Sheet (Figure 6.3.2-b), and this sheet should be attached to the Transmittal Form. This sheet should be used especially in case of gaps in data or missing stations which will be submitted later, and is intended to forestall unnecessary efforts at error resolution by the Regional Office.

Check the appropriate box for any data submitted as corrections to data previously submitted. Attach a copy of the SAROAD Error Sheet if same was forwarded by the EPA Regional Office with a request for correction or clarification of submitted data. If this submittal is a set of corrections not documented by a SAROAD Error Sheet, check "Other Origin" and describe briefly. Indicate the party originating the corrections (e.g., NADB, R.O., your own organization), reasons for changes and any previous communications regarding them.

3. Check appropriate box or boxes under "DATA CONSISTS OF," and provide counts requested. Attach a completed Magnetic Tape File Transmittal Form for data submitted on magnetic tape.

4. Check boxes describing any validation performed on this data, or describe under "Other" categories.

DATA NOT SUBMITTED

WITH QUARTERLY REPORT

(Attach to SAROAD State Transmittal Form)

Site I.D.	Pollutant/ Method	Period		Reason
		From	To	

Figure 6.3.2-b. SAROAD "Data Not Submitted with Quarterly Report" Sheet.

5. Check correct action code for data in this submittal: each submittal should contain only one action type.

6. Enter name and telephone number of a person who can be contacted for further information about this submission, and any further comments or clarifications.

Magnetic tapes that are submitted to NADB containing AEROS data must be accompanied by information on the data and magnetic tape. The information should be entered on the Magnetic Tape File Transmittal Form (MTFTF) (Figure 6.3.3-a) and mailed to the Data Processing Section, NADB, either with the tape or with notification that the tape is currently at NCC. The information for any tape created using the terminal edit procedure may be telephoned in to the Data Processing Section, but a MTFTF should also be submitted. For tapes originating with state or local agencies, submittal of the completed MTFTF by the originating agency with the NEDS or SAROAD State Transmittal Form is the preferred procedure. It can then be used as a reference by Regional Office personnel. A new MTFTF will be required for tapes created at NCC, but may include much of the information from a state-submitted MTFTF.

The MTFTF will be completed in accordance with the following instructions. The explanations refer to the sample form in Figure 6.3.3-a.

- ORIGINATOR. The name of the local, state, or Regional Office submitting the data.
- R.O. CONTROL. The unique R.O. control identification code, if one is used: e.g., the R.O. I.D. as described in 6.3.1 and 6.3.2.
- FILE #. The file number for this tape where the data can be found. Each unique file number (data set) must be recorded on a separate MTFTF.

MAGNETIC TAPE FILE TRANSMITTAL FORM

(ONE FORM REQUIRED FOR EACH TAPE FILE)

ORIGINATOR ______ ________________________

R.O. CONTROL # ____________

FILE # ____________________

REEL # ____________________

DATA DESC: ________________________________

____

DENSITY: ____________ TRACKS: ____________ PARITY: ________

CREATED ON: ______________ LANG. USED: ____________

FILE TYPE: ______________ CHARACTER CODE: ____________

RECORDS: ______________ REC LENGTH: ____________

BLOCK SIZE: ______________

HDR - LABEL: ________________________________

TRLR - LABEL: ________________________________

OTHER: ________________________________

____

____

____

Figure 6.3.3-a. Magnetic Tape File Transmittal Form.

- REEL #. The number assigned by the submitting organization to this physical reel of tape.

- DATA DESC. Short description of the data contained on this file including quarter, year, and any special information. If the tape was created on the UNIVAC 1110, the file name, including the qualifier, must be entered here.

- DENSITY. Character density at which this tape was created (e.g., 556, 800, etc.).

- TRACKS. Indicate whether 7 or 9 track tape.

- PARITY. Check "odd" or "even."

- CREATED ON. Indicate computer this tape was created on (e.g., IBM 1410, IBM 360, SPECTRA 70, UNIVAC 1108, etc.).

- LANG USED. Indicate programming language or utility program used to create file (COPY, TAPETRAN, COBOL, FORTRAN, etc.).

- FILE TYPE. Indicate type of file (e.g., SDF, ASCII COBOL, IBM, etc.).

- CHARACTER CODE. Indicate character code (e.g., ASCII, EBCDIC, FIELDATA, etc.).

- RECORDS. Enter exact number or close approximation of number of records.

- REC. LENGTH. Enter the record length (fixed records only).

- BLOCK SIZE. Enter the size of blocked records.

- HDR-LABEL. Enter description of header label. If standard label, so indicate.

- TRLR-LABEL. Enter description of trailer label. If standard label, so indicate.

- OTHER. Enter other pertinent data that may be of value in processing this tape.

A NEDS Receipt of Data Letter (Figure 6.4.1-a) or some similar communication is recommended as a means of formally acknowledging receipt of a required NEDS data submission by the Regional Office. As formal communications, these letters should be addressed to the Director of the submitting agency and signed by a R.O. Division Director. Such letters could be one component of a Regional Office system for tracking NEDS and SAROAD report submissions, with similar letters being sent as notification of missed reporting deadlines. Technical details (processing problems, errors, etc.)should be avoided in such letters, except possibly in the case of partial submissions or repeated massive problems with submitted data.

{Director,
State or Local Agency

Dear ___________:

The annual Report of Emissions Data, submitted in accordance with 40 CFR 51.7 for the year 19_ _, has been received.

Sincerely,

Director,
Receiving
Division
of R.O.}

cc: {Other R.O.
Parties Involved

Figure 6.4.1-a. NEDS Receipt of Data Letter.

A SAROAD Receipt of Data Letter (Figure 6.4.2-a) or some similar communication is recommended as a means of formally acknowledging receipt of a required SAROAD data submission by the Regional Office. As formal communications, these letters should be addressed to the Director of the submitting agency and signed by a R.O. Division Director. Such letters could be one component of a Regional Office system for tracking NEDS and SAROAD report submissions, with similar letters being sent as notification of missed reporting deadlines. Technical details (processing problems, errors, etc.) should be avoided in such letters, except possibly in the case of partial submittals or repeated massive problems with submitted data.

{Director,
State or Local Agency

Dear __________:

The quarterly Report of Ambient Air Quality Data, submitted in accordance with 40 CFR 51.7 for the _______quarter of 19 _ _, has been received.

Sincerely,

Director,
Receiving
Division
of R.O. }

cc: {Other R.O.
Parties Involved

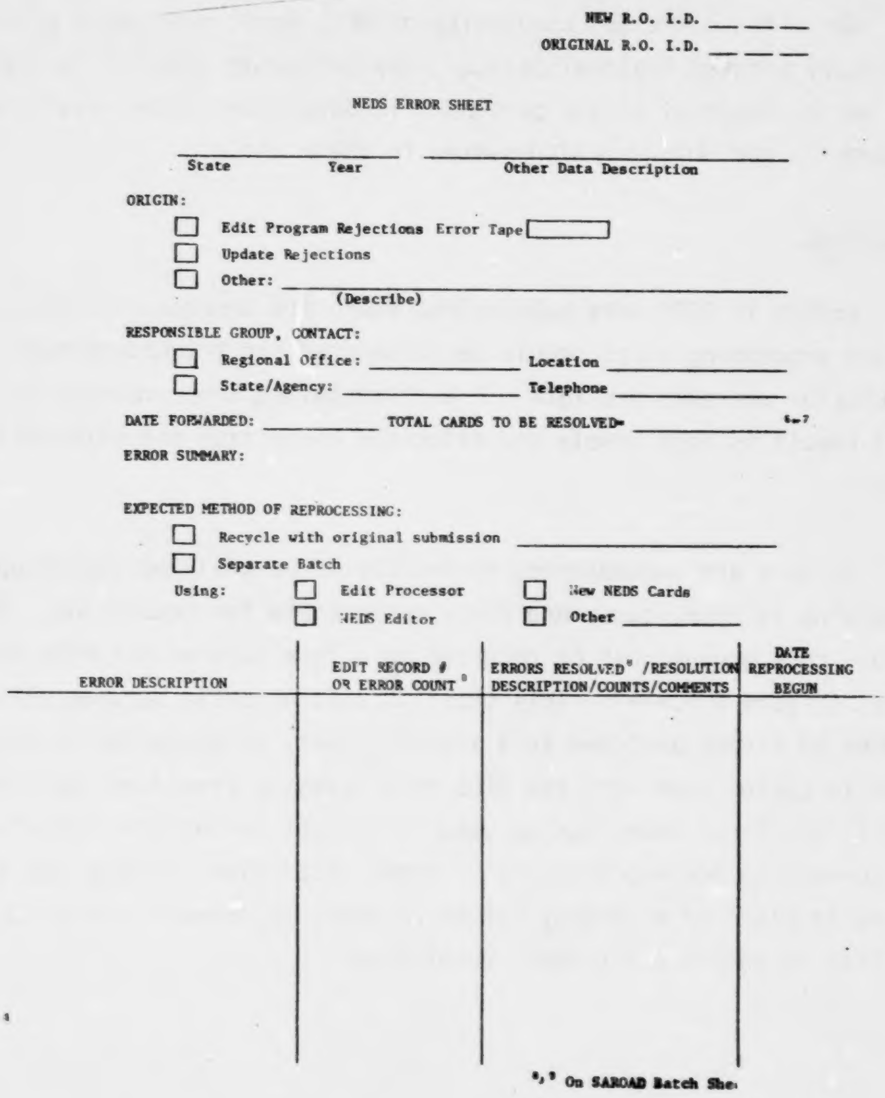
Figure 6.4.2-a. SAROAD Receipt of Data Letter.

While the scale and complexity of NEDS error resolution efforts will vary between Regional Offices, the following material is presented for use by Regional Office personnel in developing error resolution procedures and documentation suited to their needs.

PROCEDURE

Errors in NEDS data submissions which are uncovered in Regional Office processing steps should be documented and tracked through their resolution wherever possible. A well-organized error resolution process will result in more timely and effective correction and elimination of errors.

As they are encountered, errors should be analyzed and grouped according to type, cause and party responsible for resolution. Sets of errors thus grouped can be recorded on a form such as the NEDS Error Sheet (Figure 6.5.1-a). This sheet is used as basic documentation of a number of errors assigned to a specific party or group for resolution. Used in conjunction with the NEDS recordkeeping procedures and forms in 7.2.1, the Error Sheet can be used to account for errors from discovery to correction and reprocessing or other resolution. A copy may also be used, in place of a lengthy letter or memo, to forward errors to the parties responsible for their resolution.



NEW R.O. I.D. ___ ___ ___
ORIGINAL R.O. I.D. ___ ___ ___

NEDS ERROR SHEET

State Year Other Data Description

ORIGIN:

☐ Edit Program Rejections Error Tape ☐
☐ Update Rejections
☐ Other: ____________________ (Describe)

RESPONSIBLE GROUP, CONTACT:

☐ Regional Office: ____________ Location ____________
☐ State/Agency: ____________ Telephone ____________

DATE FORWARDED: __________ TOTAL CARDS TO BE RESOLVED- ______________[6-7]

ERROR SUMMARY:

EXPECTED METHOD OF REPROCESSING:

☐ Recycle with original submission ____________________
☐ Separate Batch

Using: ☐ Edit Processor ☐ New NEDS Cards
☐ NEDS Editor ☐ Other __________

ERROR DESCRIPTION	EDIT RECORD # OR ERROR COUNT[8]	ERRORS RESOLVED[9] /RESOLUTION DESCRIPTION/COUNTS/COMMENTS	DATE REPROCESSING BEGUN

[8,9] On SAROAD Batch She

Figure 6.5.1-a. NEDS Error Sheet.

USING THE ERROR SHEET (Figure 6.5.1-a)

Initiation

Once a set of errors from a NEDS submission has been defined and the Regional Office, state or local agency group responsible for resolution identified, the entire NEDS Error Sheet, except for the last two columns, should be filled out as follows. The R.O. I.D. of the original submission containing the errors should be entered in the upper right corner. The state, year for which data was submitted and any further description of the data involved are entered on the first line. The processing step from which the errors originated should be checked and described as necessary (enter NCC reel number if Edit Program Error Tape may be used). The group to whom responsibility for error resolution has been assigned is checked and a contact person in that group noted, as is the date on which the errors were forwarded for resolution.

The total number of cards involved in the errors forwarded is determined and recorded: this should correspond to one of the card counts in the Error Resolution section of the NEDS Batch Sheet for the original submission (Superscript 6 or 7). A summary of the types of errors involved should be included. Appropriate boxes should be checked to identify the type of submission and/or processing expected in resolving the errors.

Individual or groups of errors should be described in the first column of the table at the bottom of the Error Sheet. The Edit Record # (for individual errors) or a count of the number of errors of a given description should be entered in the second column.

Error Resolution

Filled out as described above, the NEDS Error Sheet should provide solid basic documentation for resolution of a group of errors. Copies of listings from processing steps may be a useful addition to the Error Sheet information.

The third column of the table on the Error Sheet should be used after error resolution has been completed by the responsible party, to record the number of errors resolved, method of resolution, and other details. The party responsible for error resolution should be encouraged to fill out this information. An attempt should be made to account for all errors initially entered, and to distinguish between data items or records which are changed or dropped to resolve errors.

Reprocessing

The final column of the Error Sheet table is used to enter the date on which the corrected errors reentered normal Regional Office NEDS processing. If all resolved errors are available at the same time, they can be assigned a single new Regional Office I.D., which should be entered in the upper right corner of the Error Sheet. Otherwise, new R.O. I.D.s can be recorded with the date of reprocessing, opposite the error descriptions which apply.

ACCOUNTING FOR ERRORS

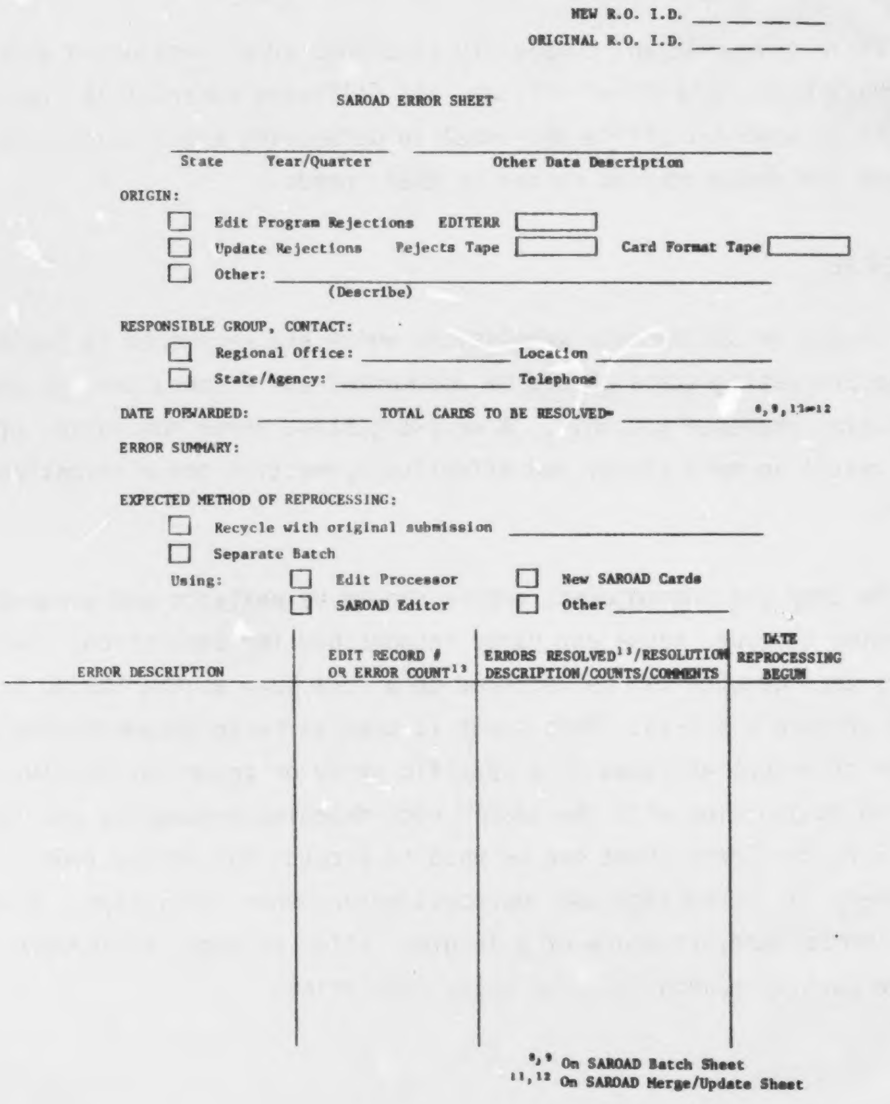
NEDS submissions made without distinguishing between current data and data submitted to resolve errors or inadequacies in previous submissions may cause a problem in accounting for individual errors or groups of errors in the above manner. Use of the Error Sheet and the NEDS State Transmittal Form (6.3.1) should improve the degree to which successful tracking and resolution can be achieved, with relatively small effort.

While the scale and complexity of SAROAD error resolution efforts will vary between Regional offices, the following material is presented for use by Regional Office personnel in developing error resolution procedures and documentation suited to their needs.

PROCEDURE

Errors in SAROAD data submissions which are uncovered in Regional Office processing steps should be documented and tracked through their resolution wherever possible. A well-organized error resolution process will result in more timely and effective correction and elimination of errors.

As they are encountered, errors should be analyzed and grouped according to type, cause and party responsible for resolution. Sets of errors thus grouped can be recorded on a form such as the SAROAD Error Sheet (Figure 6.5.2-a). This sheet is used as basic documentation of a number of errors assigned to a specific party or group for resolution. Used in conjunction with the SAROAD recordkeeping procedures and forms in 7.2.2, the Error Sheet can be used to account for errors from discovery to correction and reprocessing or other resolution. A copy may also be used, in place of a lengthy letter or memo, to forward errors to the parties responsible for their resolution.



NEW R.O. I.D. __ __ __ __
ORIGINAL R.O. I.D. __ __ __ __

SAROAD ERROR SHEET

State Year/Quarter Other Data Description

ORIGIN:

☐ Edit Program Rejections EDITERR ☐
☐ Update Rejections Rejects Tape ☐ Card Format Tape ☐
☐ Other: ____________ (Describe)

RESPONSIBLE GROUP, CONTACT:

☐ Regional Office: ________ Location ________
☐ State/Agency: ________ Telephone ________

DATE FORWARDED: ________ TOTAL CARDS TO BE RESOLVED= ________ [8,9,11-12]

ERROR SUMMARY:

EXPECTED METHOD OF REPROCESSING:

☐ Recycle with original submission ________
☐ Separate Batch

Using: ☐ Edit Processor ☐ New SAROAD Cards
☐ SAROAD Editor ☐ Other ________

ERROR DESCRIPTION	EDIT RECORD # OR ERROR COUNT[13]	ERRORS RESOLVED[13]/RESOLUTION DESCRIPTION/COUNTS/COMMENTS	DATE REPROCESSING BEGUN

[8,9] On SAROAD Batch Sheet
[11,12] On SAROAD Merge/Update Sheet

Figure 6.5.2-a. SAROAD Error Sheet.

USING THE ERROR SHEET (Figure 6.5.2-a)

Initiation

Once a set of errors from a SAROAD submission has been defined and the Regional Office, state or local agency group responsible for resolution identified, the entire SAROAD Error Sheet, except for the last two columns, should be filled out as follows. The R.O. I.D. of the original submission containing the errors should be entered in the upper right corner. The state, year and quarter for which data was submitted and any further description of the data involved are entered on the first line. The processing step from which the errors originated should be checked and described as necessary. NCC reel numbers should be entered for any magnetic tapes relevant to the errors involved. The group to whom responsibility for error resolution has been assigned is checked and a contact person in that group noted, as is the date on which the errors were forwarded for resolution.

The total number of cards involved in the errors forwarded is determined and recorded: this should correspond to one of the card counts in the Error Resolution section of the SAROAD Batch Sheet or Merge/Update Sheet for the original submission (Superscripts 8, 9, 11 or 12). A summary of the types of errors involved should be included. Appropriate boxes should be checked to identify the type of submission and/or processing expected in resolving the errors.

Individual or groups of errors should be described in the first column of the table at the bottom of the Error Sheet. The Edit Record # (for individual errors) or a count of the number of errors of a given description should be entered in the second column.

Error Resolution

Filled out as described above, the SAROAD Error Sheet should provide solid basic documentation for resolution of a group of errors. Copies of listings from processing steps may be a useful addition to the Error Sheet information.

The third column of the table on the Error Sheet should be used after error resolution has been completed by the responsible party, to record the number of errors resolved, method of resolution and other details. The party responsible for error resolution should be encouraged to fill out this information. An attempt should be made to account for all errors initially entered, and to distinguish between data items or records which are changed or dropped to resolve errors.

Reprocessing

The final column of the Error Sheet table is used to enter the date on which the corrected errors reenter normal Regional Office SAROAD processing. If all resolved errors are available at the same time, they can be assigned a single new Regional Office I.D., which should be entered in the upper right corner of the Error Sheet. Otherwise, new R.O. I.D.s can be recorded with the date of reprocessing, opposite the error descriptions which apply.

ACCOUNTING FOR ERRORS

SAROAD submissions made without distinguishing between current data and data submitted to resolve errors or inadequacies in previous submissions may cause a problem in accounting for individual errors or groups of errors in the above manner. Use of the Error Sheet and the SAROAD State Transmittal Form (6.3.2) should improve the degree to which successful tracking and resolution can be achieved, with relatively small effort.

The NEDS Terminal Edit (Procedure NE000A) allows the Regional Offices to obtain an inventory of data received from State or local agencies. It also allows the Regional Offices to edit the incoming transactions and identify records which do not meet basic acceptance criteria for updating to NEDS files or that may contain anomalous data values. The Regional Offices have the option of correcting any identified errors themselves, returning the data to the submitting agency for correction, or if there are no or only an insignificant number of edit errors, notifying NADB that the data are ready for update.

The Terminal Edit procedure first involves processing of tapes and/or cards received to create a standard-labelled ASCII Cobol tape to be used as input for the pre-edit and edit processing steps. These procedures are described in the operating instructions for procedure NE000A.

NEDS Pre-Edit

The NEDS Pre-Edit program (NE026) enables the EPA Regional Offices to determine the quantity and identity of NEDS data submitted for processing. NE026 requires one minute to process approximately 1500 NEDS card-image records.

NE026 reads NEDS card-image (80-character) records from a standard-labeled magnetic tape file blocked 50 records. As each record is read, it is reformatted to facilitate sorting and then released to an internal COBOL sort. The sort places the records in area source, point source, and unverified point source groups respectively. The area source group is further sorted on State, county, AQCR, and year-of-record. Additional sorts on point source and unverified point source records are: State, county, AQCR, plant, and year-of-record.

Up to three inventory reports will be produced by NE026 depending on the number of data types (area, point, unverified point) present on the input tape. Each report line shows the number of add, change, and delete transactions submitted for a particular group of sort keys and card types (1-7). Page breaks are taken when a different State is encountered.

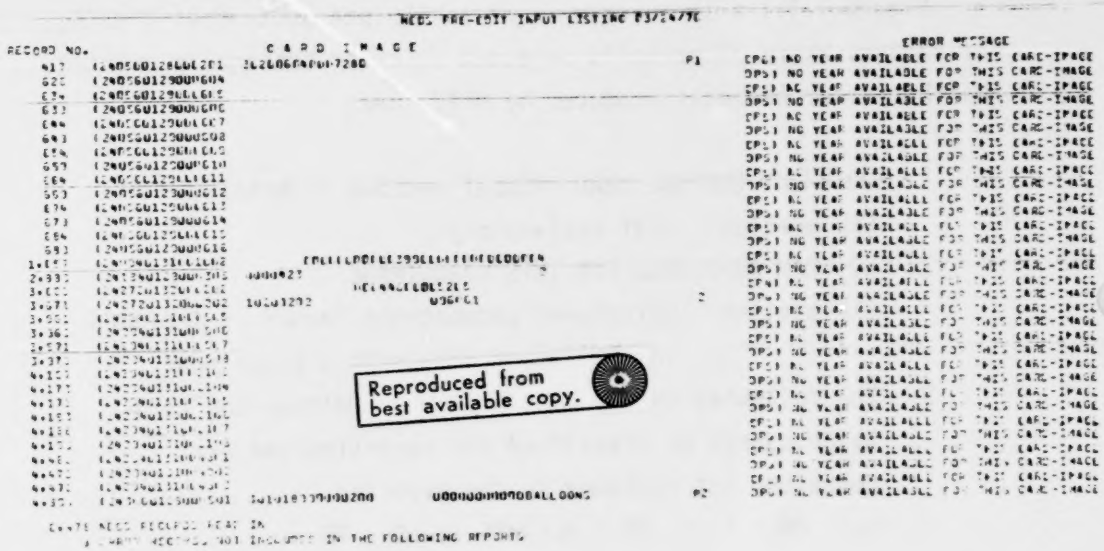
If the input tape contains records which can't be classified for the inventory reports because of invalid card type, action code, or data type, they will not be included in the report. They will, however, be listed with an appropriate error message prior to any report data. The user has the option, through the use of a control card, of printing all input records in input format. This option is recommended if the user wishes to have a listing of all input records received from the State agency that submitted the data.

NE026 does not create or modify any catalogued mass-storage files nor does it require any previously created files other than the input tape file. It is written in ASCII COBOL for use on the UNIVAC 1110 computer system at Research Triangle Park, N.C.

Figure 7.1.1-a is an example of a NEDS pre-edit input listing. For records where an error is detected an error message is printed. Possible error messages produced by NE026 are:

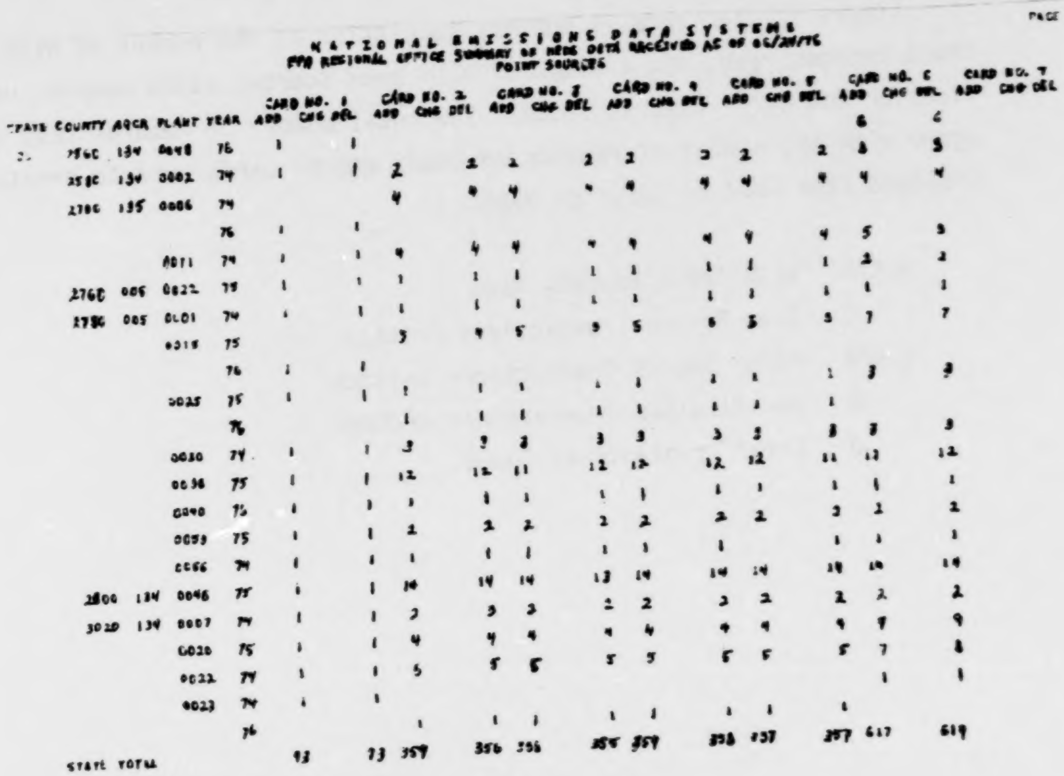
1. NO PRINT CONTROL CARD PRESENT --NE026 TERMINATED.
   Explanation: Self explanatory
2. NO YEAR AVAILABLE FOR THIS CARD-IMAGE
   Explanation: Notational comment-the record is included in the report data with a blank year.
3. The following three error messages indicate the card-image cannot be classified for reporting and are therefore not included in the reports:
   (a) ONLY A, C, OR D ALLOWED IN COL. 78
   (b) ONLY A,P, OR V ALLOWED IN COL. 79
   (c) ONLY 1 THROUGH 7 ALLOWED IN COL. 80
   The records for which these errors are indicated should be corrected before processing through the NEDS EDITOR program, NE061.

Figure 7.1.1-b shows the EPA Regional Office Summary of NEDS Data Received which is generated by NE026. A report in this format is generated for each data type (area, point, unverified point) present



Reproduced from best available copy.

Figure 7.1.1-a NEDS Pre-Edit Input Listing



PAGE

NATIONAL EMISSIONS DATA SYSTEMS
EPA REGIONAL OFFICE SUMMARY OF NEDS DATA RECEIVED AS OF
POINT SOURCES

STATE COUNTY AQCR PLANT YEAR CARD NO. 1 ADD CHG DEL CARD NO. 2 ADD CHG DEL CARD NO. 3 ADD CHG DEL CARD NO. 4 ADD CHG DEL CARD NO. 5 ADD CHG DEL CARD NO. 6 ADD CHG DEL CARD NO. 7 ADD CHG DEL

STATE TOTAL

Figure 7.1.1-b EPA Regional Office Summary of NEDS Data Received

in the input data. Totals for each data type for each State and for the entire set of records in a given data set are also included. These reports can be used to verify that all cards which should be in a data set are in fact present.

Figure 7.1.1-c shows a summary tabulation of the number of NEDS input records read, and a count of NEDS area source, point source, verification and error records found. The total number of records read should agree with the number of records on tapes and/or cards used to create the standard tape used as input to NE026.

6,478	NEDS Input Records Read
0	Area Source Transactions Written
6,478	Point Source Transactions Written
0	Verification Transactions Written
0	Error Transactions Found

Figure 7.1.1-c Summary of NEDS Pre-Edit Transactions

NEDS EDITOR

NEDS data submitted to EPA Regional Offices are processed through the NEDS EDITOR program (NE061) to determine if the data meet minimum requirements for updating of NEDS files. Records with data failing to meet the minimum requirements are rejected and the data are not updated to NEDS files.

NE061 was developed to perform edits on all required fields of NEDS Area Source, Point Source, and Unverified Point Source data submitted for update to the NEDS data base. It allows the EPA Regional Offices to identify and correct any data errors which might inhibit updating prior to submitting the data for update.

Input to NE061 is a tape file of card-image NEDS transactions submitted by the States for update to the National Emission Data Bank (NEDB). As each NEDS card image is read, sort keys are appended to it and it is released to an internal COBOL sort. The primary sort sequence is type transaction (e.g. area source, point source or unverified point source). Within each type, the transactions are sorted so that records pertaining to a particular area, point, or unverified point are sequenced continuously.

As each record is returned from the sort, the fields are edited for content and/or format. The contents of some fields such as Source Classification Code and County) are validated by accessing other NEDS files. If a record passes all edits, it is written to a tape file of card images which will be input to the NEDS Post-Edit and update processes.

Also for each unique Plant, Point, or SCC identified in the error free data, a standard NEDS selection card image may be generated by NE061. These card images may be used for selection of a Point Source Listing or other NEDS report when NADB update is complete.

Input records which are found to contain edit errors, are flagged according to the type of error (warning or rejection), and are then written on a temporary mass-storage error file. After all records are edited, the temporary file is closed and reopened as input to the error reporting phase of NE061. In the error reporting phase, each record is read from the temporary file and the error type flag is analyzed. Depending on the type of error, each record is written to either the Warning Error Report or the Rejection Error Report along with the appropriate error message. Each time a new state code is encountered while writing either report, the new state record is printed at the top of a new page.

NE061 also produces a tape file of NEDS card images which contain edit errors. The file is written in format which allows it, after correction of edit errors, to be used as input to another run of NE061. This allows users who wish to correct errors by using UNIVAC standard edit processors to submit the corrected tape to NADB for update.

NE061 is designed for the use of remote batch terminal users (EPA Regional Offices) of the UNIVAC 1110 located at EPA's Research Triangle Park, N.C., computer center. Approximately 2 minutes of CPU time is required by NE061 to process 1000 NEDS card images.

EDIT DIAGNOSTICS REPORT

NE061 produces the "Reject Edit Diagnostics for NEDS Input" and "Warning Edit Diagnostics for NEDS Input" reports which show the following:

1. Input sequences number of each NEDS card-image containing edit errors.
2. The card image enclosed in parentheses.
3. Descriptive error messages describing the edit errors encountered in the card images.
4. An input record count.
5. A count of error records.
6. Counts of Area Source, Point Source, and Unverified Point Source records passing all edits.

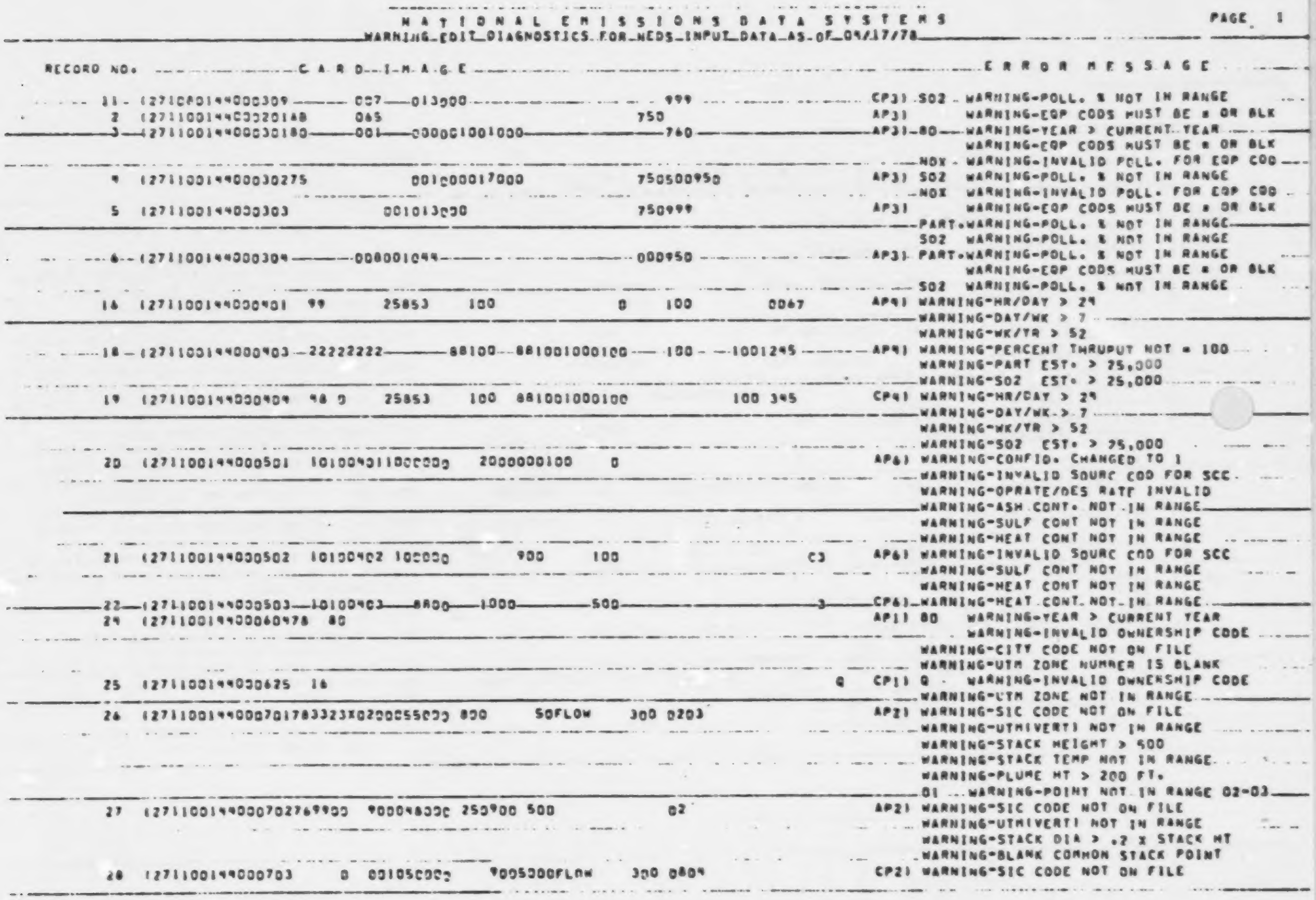
Figures 7.1.1-d and 7.1.1-e show examples of the edit diagnostics reports.

NEDS EDITOR ERROR MESSAGES

There are 17 possible edit rejection messages and 51 warning messages which may be generated by NE061 pertaining to area, point, or unverified point source records. Edit rejection messages indicate definite errors which must be corrected before data can be updated. Warning messages indicate probable data field errors that should be investigated, but do not necessarily require correction. Records for which only warning messages are printed are not written to the NEDS edit errors file. Each of the messages, together with an explanation indicating the only correct values or probable corrective action required when the message is generated, are listed in Table 7.1.1-a and Table 7.1.1-c.

```
                                                                                                   PAGE   1
                              N A T I O N A L   E M I S S I O N S   D A T A   S Y S T E M S
                               REJECT EDIT DIAGNOSTICS FOR NEDS INPUT DATA AS OF 09/17/78
                                                                                        E R R O R   M E S S A G E
RECORD NO.             C A R D   I M A G E
   11  1271080144000309       007   013000                      999                CP31 1080 IS AN INVALID COUNTY ID
                                                                                        PART.CONTROL CODE/% EFFICIENCY INVALID
    1  1271100144000101       045   001000        015      750800                  DP31 INVALID ACTION/CARD COMBINATION
                                                                                   AP31 NON-NUMERIC IN YEAR-OF-RECORD
    2  127110014400020148     045                          750                          045  IS AN INVALID CONTROL CODE
                                                                                   AP31 PART.CONTROL CODE/% EFFICIENCY INVALID
    3  1271100144000301B0     001    C00301001000              760                      NOX  CONTROL CODE/% EFFICIENCY INVALID
                                                                                   AP31 PART.CONTROL CODE/% EFFICIENCY INVALID
    4  1271100144000302?5           021000017000          750500950                AP31 HC   CONTROL CODE/% EFFICIENCY INVALID
    8  1271100144000306          0  0       021000                                 AP31 NOX  CONTROL CODE/% EFFICIENCY INVALID
    9  1271100144000307          0  0      000000000000  0   750                   CP31 NON-NUMERIC IN NOX CONTROL EFF.
   10  1271100144000311                                 98098                     AP41 PART.ESTIMATION METHOD INVALID
   16  1271100144000901  99      75853     100          0    100         0067      AP41 NOX  BLANK EMISSION ESTIMATE INVALID
   17  1271100144000902  30203020                                       33174           HC   BLANK EMISSION ESTIMATE INVALID
                                                                                        CO   BLANK EMISSION ESTIMATE INVALID
                                                                                   AP41 CO   ESTIMATION METHOD INVALID
   18  1271100144000903  22222222        88100  881001C00100    100    1001245          NOX  EMISSION EST.> 800,000 TONS
                                                                                   CP41 HC   BLANK EMISSION ESTIMATE INVALID
   19  1271100144000909  98 0    25853     100  881001000100            100 345         NOX  EMISSION EST.> 800,000 TONS
                                                                                   AP61 3    IS AN INVALID CONFIDENTIALITY CO
   21  1271100144000502  10100402 100000        900        100               C3    CP61 3    IS AN INVALID CONFIDENTIALITY CO
   22  1271100144000503  10100403   8800   1000          500                 3     CP61 ERROR IN SCC
   23  1271100144000509  10100499                                            1     AP11 ESTABLISHMENT NAME/ADDR. MISSING
   24  12711001440006097B - 80                                                Q    CP11 NON-NUMERIC IN CITY-CODE
   25  1271100144000625  16                                                        AP21 NON-NUMERIC IN IPP PROCESS CODE.
   26  1271100144000701783323X0200055000 800      50FLOW     300 0203                   NON-NUMERIC IN FLOW RATE
                                                                                   CP21 NON-NUMERIC IN FLOW RATE
   28  1271100144000703      0  CC105C000     9005000FLOW     300 0809             AP51 NON-NUMERIC IN EMIS. ALLOW CO
   29  1271100144000901     500009999999  29999      0   NEGL599157811013NO DATA  CP71      POINT CANNOT CONTAIN BLANKS
   15  1271100144000?9   101004C1NO POINT ID                                       AP71 ERROR IN SCC
   14  1271100144000901  10100499INVALID SCC                                       AP31 1850 IS AN INVALID COUNTY ID
   12  1271850   000308       001000                      990                           030  IS AN INVALID AQCR
```

Figure 7.1.1-d Reject Edit Diagnostics Report



```
                        N A T I O N A L   E M I S S I O N S   D A T A   S Y S T E M S                          PAGE  1
                       WARNING EDIT DIAGNOSTICS FOR NEDS INPUT DATA AS OF 04/17/78

RECORD NO.              C A R D   I M A G E                                            E R R O R   M E S S A G E

      11   1271CP0144000309      007   013000                  444                CP31 SO2   WARNING-POLL. % NOT IN RANGE
       2   127110014 4C032014B   065                      750                     AP31       WARNING-EOP CODS MUST BE * OR BLK
       3   127110014400030180    001   0000C1001000            760                AP31 80    WARNING-YEAR > CURRENT YEAR
                                                                                             WARNING-EOP CODS MUST BE * OR BLK
                                                                                       NOX   WARNING-INVALID POLL. FOR EOP COD
       4   1271100144000302 75          001C00017000      750500950               AP31 SO2   WARNING-POLL. % NOT IN RANGE
                                                                                       NOX   WARNING-INVALID POLL. FOR EOP COD
       5   1271100144000303             001013C00         750444                  AP31       WARNING-EOP CODS MUST BE * OR BLK
                                                                                       PART. WARNING-POLL. % NOT IN RANGE
                                                                                       SO2   WARNING-POLL. % NOT IN RANGE
       6   1271100144000304      000001044                000950                  AP31 PART. WARNING-POLL. % NOT IN RANGE
                                                                                             WARNING-EOP CODS MUST BE * OR BLK
                                                                                       SO2   WARNING-POLL. % NOT IN RANGE
      16   1271100144000401  44      25853    100          0    100       0067    AP41 WARNING-HR/DAY > 24
                                                                                       WARNING-DAY/WK > 7
                                                                                       WARNING-WK/YR > 52
      18   1271100144000403  22222222    88100  881001000100  100   1001245        AP41 WARNING-PERCENT THRUPUT NOT = 100
                                                                                       WARNING-PART EST. > 25,000
                                                                                       WARNING-SO2  EST. > 25,000
      19   1271100144000404  48 0    25853    100  881001000100        100 345     CP41 WARNING-HR/DAY > 24
                                                                                       WARNING-DAY/WK > 7
                                                                                       WARNING-WK/YR > 52
                                                                                       WARNING-SO2  EST. > 25,000
      20   1271100144000501  101004011000000   2000000100    0                      AP61 WARNING-CONFID. CHANGED TO 1
                                                                                       WARNING-INVALID SOURC COD FOR SCC
                                                                                       WARNING-OPRATE/DES RATE INVALID
                                                                                       WARNING-ASH CONT. NOT IN RANGE
                                                                                       WARNING-SULF CONT NOT IN RANGE
                                                                                       WARNING-HEAT CONT NOT IN RANGE
      21   1271100144000502  10100402 100000       900      100              C3     AP61 WARNING-INVALID SOURC COD FOR SCC
                                                                                       WARNING-SULF CONT NOT IN RANGE
                                                                                       WARNING-HEAT CONT NOT IN RANGE
      22   1271100144000503  10100403   8800   1000        500                 3    CP61 WARNING-HEAT CONT. NOT IN RANGE
      24   127110014400060478  80                                                   AP11 80    WARNING-YEAR > CURRENT YEAR
                                                                                             WARNING-INVALID OWNERSHIP CODE
                                                                                       WARNING-CITY CODE NOT ON FILE
                                                                                       WARNING-UTM ZONE NUMBER IS BLANK
      25   1271100144000625  16                                                Q    CP11 Q     WARNING-INVALID OWNERSHIP CODE
                                                                                       WARNING-UTM ZONE NOT IN RANGE
      26   12711001440007017833 23X0200055000 800     50FLOW     300 0203            AP21 WARNING-SIC CODE NOT ON FILE
                                                                                       WARNING-UTM(VERT) NOT IN RANGE
                                                                                       WARNING-STACK HEIGHT > 500
                                                                                       WARNING-STACK TEMP NOT IN RANGE
                                                                                       WARNING-PLUME HT > 200 FT.
                                                                                       01    WARNING-POINT NOT IN RANGE 02-03
      27   12711001440007027 64400  400048000 250400 500          02               AP21 WARNING-SIC CODE NOT ON FILE
                                                                                       WARNING-UTM(VERT) NOT IN RANGE
                                                                                       WARNING-STACK DIA > .2 X STACK HT
                                                                                       WARNING-BLANK COMMON STACK POINT
      28   1271100144000703      0  00105C000     4005300FLOW     300 0804          CP21 WARNING-SIC CODE NOT ON FILE
```

Figure 7.1.1-e Warning Edit Diagnostics Report

Table 7.1.1-a NEDS EDIT ERROR REJECTION MESSAGES

The following errors will result in the rejection of the transaction.

1. ______IS AN INVALID STATE ID
   Explanation: Valid State ID's are 01-55.

2. ______IS AN INVALID COUNTY ID
   Explanation: The county shown is not a valid entry in the AERO-CTYCNTY File.

3. ______IS AN INVALID AQCR
   Explanation: Valid AQCR's are 001-247.

4. ______PLANT ID CONTAINS BLANKS
   Explanation: Plant ID may not contain blanks.

5. ______POINT CANNOT CONTAIN BLANKS
   Explanation: Point ID may not contain blanks.

6. ERROR IN SCC
   Explanation: The SCC must be completely filled in to be a valid entry in the NEDS-EM-FACT file. Valid SCC Codes are in the Source Classification Code Table in Publication No. AP-42 or in AEROS Volume V.

7. ______IN COLUMN 78

Explanation: The only allowable entries in this column are: A(add), C(change), and D(delete).

8. ______IN COLUMN 79 NO OTHER EDITS MADE

Explanation: The only allowable entries in this column are A(area source), P(point source), and V(unverified point source).

9. _____IN COLUMN 80

Explanation: The only allowable entries in this column are 1-7.

10. _____INVALID ACTION/CARD COMBINATION

Explanation: For Area Source records, a "D" action is valid only for card number 1. For point source records, a "D" action is valid only for card numbers 1, 2, and 6.

11. _____ESTABLISHMENT NAME/ADDR. MISSING

Explanation: The establishment name and address must be entered.

12. ______IS AN INVALID CONTROL CODE

Explanation: The Control Equipment Code shown is not in the control code table. Valid entries are in Vol. V, of the AEROS Manual. Blanks are only permitted when the corresponding Percent Efficiency is also blank.

13. ______CONTROL CODE/% EFFICIENCY INVALID

Explanation: For the pollutant shown, a control equipment code is shown and control efficiency is blank or vice versa. Either control device field should be changed to blank or control efficiency should be entered.

14. ______EMISSION EST. > 800,000 TONS

Explanation: The pollutant shown has estimated emissions greater than the allowed maximum (800,000 tons).

15. ______BLANK EMISSION ESTIMATE INVALID

Explanation: If the estimation method for a pollutant is 1, 2, 4, 5, an estimated emission must be shown for that pollutant.

16. ______ESTIMATION METHOD INVALID

Explanation: The valid estimation method codes are 0-7 and blank. However, for add transactions, blanks are allowed only if the corresponding emission estimate is also blank.

17. ______XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Explanation: Due to program modification this message has been eliminated. Since this message is within a program table it has been replaced with "X"s instead of deleting it entirely. This message previously read "IS AN INVALID CONFIDENTIALITY CD."

*18. NON-NUMERIC IN______

Explanation: If an entry is made in the field shown, that entry must be all numeric.

* A list of all fields for which this message applies is given on page 12 of this section.

Table 7.1.1-a NEDS EDIT ERROR MESSAGES

*A total of 139 fields in the Area Source, Point Source, and Unverified Point Source cards may appear in error message number 18. The field names are abbreviated in the message due to limited print line space. The following pages are a cross-reference showing the abbreviated field name, the number of the card containing the field, and the field name.

Table 7.1.1-b FIELDS REQUIRING ALL NUMERICS (or all blanks)

Error Message Abbreviation	Card	Field Name
1. City Code	1	City Code
2. UTM Zone	1	Universal Transverse Mercator Zone
3. SIC CODE	2	Standard Industrial Classification Code
4. IPP PROCESS CODE	2	IPP Process Code
5. UTM Coord. Horz.	2	UTM Horizontal Coordinate
6. UTM Coord. Vert.	2	UTM Vertical Coordinate
7. Stack Height	2	Stack Height (Ft.)
8. Stack Diameter	2	Stack Diameter (Ft.)
9. Stack Temp.	2	Stack Temperature (Degrees F.)
10. Flow Rate	2	Stack Flow Rate (Cubic Ft./minute)
11. Plume Height	2	Plume Height (Ft.)-if no stack
12. Boiler Des. Cap.	3	Boiler Design Capacity (1,000,000 BTU/hr)
13. Pri. Part. Contrl	3	Control Equipment Code - Primary Particulate
14. Sec. Part.	3	Control Equipment Code - Secondary Particulate
15. Pri SO2 Control	3	Control Equipment Code - Primary SO_2
16. Sec. SO2 Control	3	Control Equipment Code - Secondary SO_2
17. Pri NOX Control	3	Control Equipment Code - Primary NO_x

Table 7.1.1-b Fields Requiring All Numerics (or all blanks)

Error Message Abbreviation	Card	Field Name
18. Sec NOX Control	3	Control Equipment Code - Secondary NO_x
19. Pri. HC Control	3	Control Equipment Code - Primary HC
20. Sec. HC Control	3	Control Equipment Code - Secondary HC
21. Pri. CO Control	3	Control Equipment Code - Primary CO
22. Sec. CO Control	3	Control Equipment Code - Secondary CO
23. Part. Control Eff.	3	Estimated Control Efficiency %-Particulate
24. SO2 Control Eff.	3	Estimated Control Efficiency %-SO_2
25. NOX Control Eff.	3	Estimated Control Efficiency %-NO_x
26. HC Control Eff.	3	Estimated Control Efficiency %-HC
27. CO Control Eff.	3	Estimated Control Efficiency %-CO
28. DEC-FEB T.P. PCT.	4	% Annual Throughput, December-February
29. MAR-MAY T.P. PCT.	4	% Annual Throughput, March-May
30. JUN-AUG T.P. PCT.	4	% Annual Throughput, June-August
31. SEP-NOV T.P. PCT.	4	% Annual Throughput, September-November

Table 7.1.1-b Fields Requiring All Numerics (or all blanks)

Error Message Abbreviation	Card	Field Name
32. Normal Op. Hr/Day	4	Normal operating hours per day
33. Normal Op. Day/Wk	4	Normal operating days per week
34. Normal Op. Wk/Yr	4	Normal operating weeks per year
35. Emis. Est Part.	4	Estimated tons of particulate emissions for a year
36. Emis. Est. SO2	4	Estimated tons of SO_2 emissions for a year
37. Emis. Est. NOX	4	Estimated tons of NO_x emissions for a year
38. EMIS. Est. HC	4	Estimated tons of HC emissions for a year
39. Emis. Est. CO	4	Estimated tons of CO emissions for a year
40. Est. Meth. Part.	4	Estimation Method Code used for particulate
41. Est. Meth. SO2	4	Estimation Method Code used SO_2
42. Est. Meth. NOX	4	Estimation Method Code used for NO_x
43. Est. Meth. HC	4	Estimation Method Code used for HC
44. Est. Meth. CO	4	Estimation Method Code used for CO
45. PCT. SPACE HEAT	4	Percentage of Space Heated

Table 7.1.1-b Fields Requiring All Numerics (or all blanks)

Error Message Abbreviation	Card	Field Name
46. Emis. ALLOW PART	5	Allowable Emission Tons per year of particulate
47. Emis. ALLOW SO2	5	Allowable Emission tons per year of SO_2
48. Emis. ALLOW NOX	5	Allowable Emission tons per year of NO_x
49. Emis. ALLOW HC	5	Allowable Emission tons per year of HC
50. Emis. ALLOW CO	5	Allowable Emission tons per year of CO
51. Compliance Status	5	Compliance Status Code
52. Comp. Sched. Year	5	Compliance Schedule Year
53. Comp. Sched. Mo.	5	Compliance Schedule Month
54. Comp. Stat. Up. YR	5	Compliance Status Update Year
55. Comp. Stat. Up. MO	5	Compliance Status Update Month
56. Comp. Stat. Up. DA	5	Compliance Status Update Day
57. ECAP	5	Emergency Control Action Program Status Code
58. Operating Rate	6	Annual Fuel, Process, Solid Waste Operating Rate

Table 7.1.1-b Fields Requiring All Numerics (or all blanks)

Error Message Abbreviation	Card	Field Name
59. Max Design Rate	6	Hourly Maximum Design Rate
60. Percent Sulfur	6	Fuel Percent Sulfur Content
61. Percent Ash	6	Fuel Percent Ash Content
62. Heat Content	6	Fuel Heat Content (1,000,000 BTU/SCC)

***The remainder of this list is the fields found on area source cards

Error Message Abbreviation	Card	Field Name
63. SIP EST. PART	1	SIP Emission Estimate (10^2 tons/yr)-Particulate
64. SIP EST. SO2	1	SIP Emission Estimate (10^2 tons/yr)-SO_2
65. SIP EST. NOX	1	SIP Emission Estimate (10^2 tons/yr)-NO_x
66. SIP EST. HC	1	SIP Emission Estimate (10^2 tons/yr)-HC
67. SIP EST. CO	1	SIP Emission Estimate (10^2 tons/yr)-CO
68. Anth. Sulfur Pct.	1	Sulfur Content Percent-Anthracite Coal
69. Bitum. Sulfur Pct.	1	Sulfur Content Percent-Bituminous Coal

Table 7.1.1-b Fields Requiring All Numerics (or all blanks)

Error Message Abbreviation	Card	Field Name
70. D. OIL Sulfur Pct.	1	Sulfur Content Percent-Distillate Oil
71. R. OIL Sulfur Pct.	1	Sulfur Content Percent-Residual Oil
72. Anth. Ash Pct.	1	Ash Content Percent-Anthracite Coal
73. Bitum. Ash Pct.	1	Ash Content Percent-Bituminous Coal
74. R. FUEL-Anthracite	1	Residential Fuel-Anthracite Coal (10^1 tons)
75. R. FUEL-Bituminous	1	Residential Fuel-Bituminous Coal (10^1 tons)
76. R. FUEL-D OIL	1	Residential Fuel-Distillate Oil (10^4 gal.)
77. R. FUEL-R. OIL	1	Residential Fuel-Residual Oil (10^4 gal.)
78. R. FUEL-NAT. GAS	1	Residential Fuel-Natural Gas (10^7 Ft^3)
79. R. FUEL-WOOD	1	Residential Fuel-Wood (10^2 tons)
80. CI FUEL-Anthracite	2	Commercial and Institutional Fuel-Anthracite Coal (10^1 tons)

Table 7.1.1-b Fields Requiring All Numerics (or all blanks)

Error Message Abbreviation	Card	Field Name
81. CI FUEL-Bituminous	2	Commercial and Institutional Fuel-Bituminous Coal (10^1 tons)
82. CI FUEL-D. Oil	2	Commercial and Institutional Fuel-Distillate Oil (10^4 gal.)
83. CI FUEL-R. Oil	2	Commercial and Institutional Fuel-Residual Oil (10^4 gal.)
84. CI FUEL-Nat. Gas	2	Commercial and Institutional Fuel-Natural Gas (10^7 Ft^3)
85. CI FUEL-Wood	2	Commercial and Institutional Fuel-Wood (10^2 tons)
86. I. FUEL-Anthracite	2	Industrial Fuel-Anthracite Coal (10^1 tons)
87. I. FUEL-Bituminous	2	Industrial Fuel-Bituminous Coal (10^1 tons)
88. I. FUEL-Coke	2	Industrial Fuel-Coke (10^1 tons)
89. I. FUEL-D. Oil	2	Industrial Fuel-Distillate Oil (10^4 gal.)
90. I. FUEL-R. Oil	2	Industrial Fuel-Residual Oil (10^4 gal.)

Table 7.1.1-b Fields Requiring All Numerics (or all blanks)

Error Message Abbreviation		Card	Field Name
91.	I. FUEL-Nat. Gas	2	Industrial Fuel-Natural Gas ($10^7 Ft^3$)
92.	I. FUEL-Wood	2	Industrial Fuel-Wood (10^2 tons)
93.	I. FUEL-Pro. Gas	2	Industrial Fuel-Processed Gas (10^7 Ft^3)
94.	OSI-Residential	3	On Site Burning-Residential (10^1 tons)
95.	OSI-Industrial	3	On Site Burning-Industrial (10^2 tons)
96.	OSI-COMM/INST	3	On Site Burning-Commercial and Institutional (10^2 tons)
97.	OB-Residential	3	Open Burning-Residential (10^2 tons)
98.	OB-Industrial	3	Open Burning-Industrial (10^2 tons)
99.	OB-COMM/INST	3	Open Burning-Commercial and Institutional (10^2 tons)
100.	Gasoline-LVH	3	Gasoline-Light Vehicles (10^3 gals.)
101.	Gasoline-HVH	3	Gasoline-Heavy Vehicles (10^3 gals.)

Table 7.1.1-b Fields Requiring All Numerics (or all blanks)

Error Message Abbreviation	Card	Field Name
102. Gasoline-OFF H.W.	3	Gasoline-Off Highway (10^3 gals.)
103. DIESEL-HVH	3	DIESEL-Heavy Vehicles (10^3 gals.)
104. DIESEL-OFF H.W.	3	DIESEL-Off Highway (10^4 gals.)
105. DIESEL-Rail	3	DIESEL-Rail Locomotive (10^4 gals.)
106. Population Code	3	Population Code
107. Aircraft-Mil.	4	Aircraft-Military (LTO Cycles 10^1)
108. Aircraft-Civil	4	Aircraft-Civil (LTO Cycles 10^1)
109. Aircraft-Comm.	4	Aircraft-Commercial (LTO Cycles 10^1)
110. Vessels-Coal	4	Vessels-Coal (10^1 tons)
111. Vessels-Diesel	4	Vessels-Diesel Oil (10^4 gal.)
112. Vessels-R. Oil	4	Vessels-Residual Oil (10^4 gal.)
113. Vessels-Gas	4	Vessels-Gasoline (10^3 gal.)
114. Evaporate-Solv	4	Evaporation-Solvent Purchases (tons/year)

Table 7.1.1-b Fields Requiring All Numerics (or all blanks)

Error Message Abbreviation	Card	Field Name
115. Evaporate-Gas	4	Evaporation-Gasoline Marketed (10^5 gal.)
116. MVM-L. ACC.	4	Measured Vehicle Miles-Limited Access Roads (10^4 miles)
117. MVM-Rural	4	Measured Vehicle Miles-Rural Roads (10^4 miles)
118. MVM-Suburb	4	Measured Vehicle Miles-Suburban Roads (10^4 miles)
119. MVM-Urban	4	Measured Vehicle Miles-Urban Roads (10^4 miles)
120. Dirt Roads Travel	5	Dirt Roads Traveled (10^3 Vehicle Miles)
121. Dirt Air Strips	5	Dirt Air Strips (LTO Cycles)
122. Construction Acres	5	Construction Acres (10^3 Acres)
123. Misc. Wind Erosion	5	Miscellaneous Wind Erosion (10^3 Acres)
124. Land Tilling	5	Land Tilling (10^3 Acres)
125. Forest Fire Acres	5	Forest Wild Fires-Acres burned
126. Forest Fire Tons	5	Forest Wild Fires-Tons/Acres burned

Table 7.1.1-b Fields Requiring All Numerics (or all blanks)

Error Message Abbreviation	Card	Field Name
127. Manage Burn Acres	5	Managed Burning (Prescribed)-Acres burned
128. Manage Burn Tons	5	Managed Burning (Prescribed)-Tons/Acres burned
129. Agri. Burn Tons	5	Agricultural Field Burning-Acres burned
130. Agri. Burn Tons	5	Agricultural Field Burning-Tons/Acres burned
131. Frost. Cont. Orch.	5	Frost Control-Orchard Heaters Operation (10^2)
132. Frost. Cont. Days	5	Frost Control-Days/Fired, Days/Year
133. Structure Fires	5	Structure Fires per year
134. Source Code	7	Source Code
135. Source Em. Est.-P	7	Source Emission Estimate (tons/yr)-Particulate
136. Source Em. Est.-S	7	Source Emission Estimate (tons/yr)-SO_2
137. Source Em. Est.-N	7	Source Emission-NO_x
138. Source Em. Est.-H	7	Source Emission Estimate (tons/yr)-HC
139. Source Em. Est.-C	7	Source Emission Estimate (tons/yr)-CO

Table 7.1.1-b Fields Requiring All Numerics (or all blanks)

Error Message Abbreviation	Card	Field Name
127. Manage Burn Acres	5	Managed Burning (Prescribed)-Acres burned
128. Manage Burn Tons	5	Managed Burning (Prescribed)-Tons/Acres burned
129. Agri. Burn Acres	5	Agricultural Field Burning-Acres burned
130. Agri. Burn Tons	5	Agricultural Field Burning-Tons/Acres burned
131. Frost. Cont. Orch.	5	Frost Control-Orchard Heaters Operation (10^2)
132. Frost. Cont. Days	5	Frost Control-Days/Fired, Days/Year
133. Structure Fires	5	Structure Fires per year
134. Source Code	7	Source Code
135. Source Em. Est.-P	7	Source Emission Estimate (tons/yr)-Particulate
136. Source Em. Est.-S	7	Source Emission Estimate (tons/yr)-SO_2
137. Source Em. Est.-N	7	Source Emission-NO_x
138. Source Em. Est.-H	7	Source Emission Estimate (tons/yr)-HC
139. Source Em. Est.-C	7	Source Emission Estimate (tons/yr)-CO

Table 7.1.1-b Fields Requiring All Numerics (or all blanks)

Error Message Abbreviation	Card	Field Name
127. Manage Burn Acres	5	Managed Burning (Prescribed)-Acres burned
128. Manage Burn Tons	5	Managed Burning (Prescribed)-Tons/Acres burned
129. Agri. Burn Acres	5	Agricultural Field Burning-Acres burned
130. Agri. Burn Tons	5	Agricultural Field Burning-Tons/Acres burned
131. Frost. Cont. Orch.	5	Frost Control-Orchard Heaters Operation (10^2)
132. Frost. Cont. Days	5	Frost Control-Days/Fired, Days/Year
133. Structure Fires	5	Structure Fires per year
134. Source Code	7	Source Code
135. Source Em. Est.-P	7	Source Emission Estimate (tons/yr)-Particulate
136. Source Em. Est.-S	7	Source Emission Estimate (tons/yr)-SO_2
137. Source Em. Est.-N	7	Source Emission-NO_x
138. Source Em. Est.-H	7	Source Emission Estimate (tons/yr)-HC
139. Source Em. Est.-C	7	Source Emission Estimate (tons/yr)-CO

Table 7.1.1-c NEDS EDIT WARNING MESSAGES

The following messages indicate likely data errors, but do not cause transactions to be rejected.

40. WARNING-CITY CODE NOT ON FILE
Explanation: The city shown is not blank or a valid entry in the AERO-CTYCNTY file.

41. WARNING-UTM ZONE NUMBER IS BLANK
Explanation: The UTM zone number should always be entered.

42. WARNING-UTM ZONE NOT IN RANGE
Explanation: The UTM zone should be code within the specified range for the state entered. An invalid state code will suppress this check. Table 7.1.1-d of this section contains valid UTM Zone ranges.

43. ______WARNING-YEAR > CURRENT YEAR
Explanation: The year-of-record must be less than or equal to current year.

44. ______WARNING-INVALID OWNERSHIP CODE

Explanation: Valid ownership codes are as follows:

P-Private
L-Local Government
S-State Government
F-Federal Government
U-Utility (Electric Power Plants, etc.)

All invalid codes are changed to blanks.

45. WARNING-SIC CODE NOT ON FILE

Explanation: The Standard Industrial Classification must be blank or a valid entry on the NEDS-SICNMS file.

46. WARNING-BLANK UTM COORDINATES

Explanation: The UTM coordinates should always be entered.

47. WARNING-UTM (HORZ) NOT IN RANGE

Explanation: The UTM horizontal coordinate is numeric but not within the range specified for the state code entered. Table 7.1.1-d of this section contains valid horizontal coordinate ranges.

48. WARNING-UTM (VERT) NOT IN RANGE

Explanation: The UTM vertical coordinate is numeric but not within the range specified for the state code entered. Reference Table 7.1.1-d of this section for valid vertical coordinate ranges.

49. WARNING-STACK HEIGHT > 500

Explanation: Stack Height is numeric but is not a value less than 500.

50. WARNING-STACK DIA > .2 X STACK HT

Explanation: Stack Diameter must be less than 20% of the Stack Height if both are entered.

51. WARNING-STACK TEMP NOT IN RANGE.

Explanation: Stack Temperature must be between 77^o and 2000^o.

52. WARNING-PLUME HT > 200 FT.

Explanation: Plume Height must be less than 200.

53. _____WARNING-POINT NOT IN RANGE ______-______

Explanation: Entries in cols. 56-59 indicate this point shares a common discharge stack but the point ID is not within the range specified in cols. 56-59.

54. WARNING-BLANK COMMON STACK POINT

Explanation: If an entry is made in cols. 56-59 (points with common stack), both the low point number (56-57) and the high point number (58-59) must be entered.

55. WARNING-COMMON PT 1 > PT 2

Explanation: Cols. 56-57 and 58-59 represent a range of point numbers sharing a common discharge stack. Cols. 58-59 must be the larger point number.

56. WARNING-INVALID POLL. FOR EQP COD

Explanation: Each control equipment code may be valid for specific pollutants. The equipment code entered is not valid for the pollutant for which it was entered. Table 7.1.1-e of this section contains the pollutants valid for each equipment code.

57. WARNING-POLL. % NOT IN RANGE

Explanation: A range of values is specified for each control code for each pollutant. The percent efficiency is not within the range. Table 7.1.1-e of this section contains the percent efficiency ranges.

58. WARNING-EQP CODS MUST BE # OR BLK

Explanation: When an equipment code is entered for a pollutant both fields (PRI, primary, and SEC, secondary) must be filled in with valid codes for that pollutant for add transactions.

59. WARNING-PERCENT THRUPUT NOT = 100

Explanation: The sum of the percent thruput fields must total 100 unless one of the fields contains 99 and the others are blank or 0 for an add transaction.

60. WARNING-HR/DAY > 24
Explanation: The operating hours/day cannot exceed 24.

61. WARNING-DAY/WK > 7
Explanation: The operating days/week must not exceed 7.

62. WARNING-WK/YR > 52
Explanation: The operating weeks/year must not exceed 52.

63. WARNING-PART EST. > 25,000
Explanation: Estimated emissions exceed 25,000 and may be incorrect, however any number between 25,000 and 800,000 will be accepted.

64. WARNING-SO_2 EST. > 25,000
Explanation: Estimated emissions exceed 25,000 and may be incorrect, however any number between 25,000 and 800,000 will be accepted.

65. WARNING-NOX EST. > 25,000
Explanation: Estimated emissions exceed 25,000 and may be incorrect, however any number between 25,000 and 800,000 will be accepted.

66. WARNING-HC EST. > 25,000
Explanation: Estimated emissions exceed 25,000 and may be incorrect, however any number between 25,000 and 800,000 will be accepted.

67. WARNING - CO EST.> 25,000

Explanation: Estimated emissions exceed 25,000 and may be incorrect, however any number between 25,000 and 800,000 will be accepted.

68. WARNING - PART ALLOW EMIS INVALID

Explanation: Allowable emissions exceed 25,000 and may be incorrect, however a valid entry is 9,999,999. Any number between 25,000 and 9,999,999 may be invalid but will be accepted.

69. WARNING - SO_2 ALLOW EMIS INVALID

Explanation: Allowable emissions exceed 25,000 and may be incorrect, however a valid entry is 9,999,999. Any number between 25,000 and 9,999,999 may be invalid but will be accepted.

70. WARNING - NOX ALLOW EMIS INVALID

Explanation: Allowable emissions exceed 25,000 and may be incorrect, however a valid entry is 9,999,999. Any number between 25,000 and 9,999,999 may be invalid but will be accepted.

71. WARNING - HC ALLOW EMIS INVALID

Explanation: Allowable emissions exceed 25,000 and may be incorrect, however a valid entry is 9,999,999. Any number between 25,000 and 9,999,999 may be invalid but will be accepted.

72. WARNING - CO ALLOW EMIS INVALID

Explanation: Allowable emissions exceed 25,000 and may be incorrect, however a valid entry is 9,999,999. Any number between 25,000 and 9,999,999 may be invalid but will be accepted.

73. WARNING - COMPLIANCE STATUS INVALID

Explanation: Compliance Status must be 1,2,3, or 4 (blank is also valid for change transactions).

74. WARNING - COMPLIANCE YEAR INVALID

Explanation: Combined with Compliance schedule month, compliance schedule year must represent a date within the next 5 years.

75. WARNING - COMPLIANCE UPDATE INVALID

Explanation: The date contained in Compliance Update must not exceed the current date.

76. WARNING - ECAP INVALID

Explanation: ECAP must be 0,1,2, or blank.

77. WARNING - OPERATE/DES RATE INVALID

Explanation: Operating Rate must not exceed (8760 x 1.1) times the Design Rate.

78. WARNING - ASH CONT. NOT IN RANGE
Explanation: The Fuel Ash Content must be blank, or within the range specified for the SCC entered. Table 7.1.1-f of this section contains the valid Ash Content ranges.

79. WARNING - SULF CONT. NOT IN RANGE
Explanation: The Fuel Sulfur Content must be blank or within the range specified for the SCC entered. Table 7.1.1-f of this section contains the valid sulfur content ranges.

80. WARNING - HEAT CONT. NOT IN RANGE
Explanation: The Fuel Heat Content must be blank or within the range specified for the SCC entered. Table 7.1.1-f of this section contains the valid heat content ranges.

81. WARNING - ASH CONT MUST BE BLANK
Explanation: The Fuel Ash Content must be blank or 0 as required by the SCC entered.

82. WARNING - SULF CONT MUST BE BLANK
Explanation: The FuelSulphur Content must be blank or 0 as required by the SCC entered.

83. Warning - HEAT CONT MUST BE BLANK
Explanation: The Fuel Heat Content must be blank or 0 as required by the SCC entered.

84. WARNING - BLANK COMMENTS FIELD
Explanation: If the SCC ends in 97, 98, or 99 (general), a description of the process and rate must be reported in the comments field.

85. WARNING - INVALID SOURCE CODE FOR SCC

Explanation: The source code is not valid for the SCC entered. Blanks are valid for change transactions.

86. WARNING -CONFID. CHANGED TO 2

Explanation: If the confidentiality code is something other than 2, then it is changed to 2.

100. SOURCE CODE > 64-COMMENTS BLANK

Explanation: If the source code in an area source card number 7 is greater than 64, the comments field may not be blank for an add transaction.

101. ______MAX EXCEEDED IN SULFUR CONT. %

Explanation: The allowed maximum values are:

Anthracite Coal	2
Bituminous Coal	7
Distillate Oil	1
Residue Oil	5

102. ______MAX EXCEEDED IN ASH CONTENT %

Explanation: The allowed maximum values are:

Anthracite Coal	25
Bituminous Coal	25

125. V TYPE RECORD SCC MUST BE NUMERIC

Explanation: The SCC in Unverified Point Source is not checked against the NEDS-EM-FACT file but must be all numeric.

TABLE 7.1.1-d VALID UTM ZONES AND COMPONENTS

STATE NUMBER	ZONES MIN	ZONES MAX	HORIZONTAL MIN	HORIZONTAL MAX	VERTICAL MIN	VERTICAL MAX
01	16	16	350	720.0	3342	3891
02	01	59	0	999.9	5408	7629
03	11	12	120	999.9	3450	4100
04	15	16	0	830.0	3640	4045
05	10	11	0	999.9	3595	4660
06	12	13	90	999.9	4090	4550
07	18	19	20	825.0	4529	4661
08	18	18	420	498.0	4254	4419
09	18	18	280	310.0	4290	4330
10	16	17	0	999.9	2720	3450
11	16	17	30	999.9	3353	3880
12	04	05	0	930.0	2144	2452
13	11	12	0	999.9	4630	5430
14	15	16	0	999.9	4089	4711
15	16	16	380	730.0	4178	4628
16	14	15	130	999.9	4486	4825
17	14	15	0	930.0	4090	4440
18	16	17	0	999.9	4035	4342
19	15	16	0	999.9	3189	3645
20	19	19	275	770.0	4760	5265
21	17	18	50	999.9	4200	4413
22	18	19	40	999.9	4562	4738
23	16	17	0	960.0	4617	5265
24	14	16	80	999.9	4815	5470

STATE	ZONES		HORIZONTAL		VERTICAL	
NUMBER	MIN	MAX	MIN	MAX	MIN	MAX
25	15	16	30	995.0	3331	3880
26	15	16	0	790.0	3980	4502
27	11	13	0	999.9	4920	5430
28	13	15	0	999.9	4420	4770
29	11	11	200	898.0	3860	4660
30	18	19	140	850.0	4717	5023
31	18	18	440	625.0	4309	4584
32	12	13	95	999.9	3473	4100
33	17	18	30	999.9	4491	4990
34	16	18	0	999.9	3738	4066
35	13	14	0	999.9	5079	5430
36	16	17	110	999.9	4244	4650
37	13	15	0	999.9	3617	4110
38	10	11	0	999.9	4640	5128
39	17	18	0	999.9	4397	4683
40	19	20	80	870.0	1969	2055
41	19	19	230	290.0	4551	4656
42	17	17	260	750.0	3540	3902
43	13	14	0	999.9	4694	5085
44	15	17	0	999.9	3867	4067
45	13	15	0	999.9	2848	4045
46	12	12	198	795.0	4090	4660
47	18	19	50	855.0	4727	4991
48	17	18	0	999.9	4041	4370
49	10	11	0	999.9	5035	5430

STATE	ZONES		HORIZONTAL		VERTICAL	
NUMBER	MIN	MAX	MIN	MAX	MIN	MAX
50	17	18	0	840.0	4117	4502
51	15	16	0	999.9	4705	5211
52	12	13	0	999.9	4530	4990
53	no validation done					
54	no validation done					
55	20	20	290	350.0	1946	2056

Table 7.1.1- e

% EFFICIENCY RANGE BY EMISSION BY CONTROL EQUIPMENT CODE

CNTRL. EQUIP #	VALID FOR P.	S.	N.	H.	C.	% EFFICIENCY RANGE PART MIN	PART MAX	SO2 MIN	SO2 MAX	NOX MIN	NOX MAX	HC MIN	HC MAX	CO MIN	CO MAX
000	X	X	X	X	X			NOT VALIDATED							
001	X	X				95	99.9	75	97.0						
002	X	X				80	95.0	60	75.0						
003	X	X				70	80.0	30	60.0						
004	X					95	99.9								
005	X					80	95.0								
006	X					20	80.0								
007	X					95	99.9								
008	X					80	95.0								
009	X					20	80.0								
010	X					95	99.9								
011	X					80	95.0								
012	X					60	80.0								
013		X	X	X	X			70	99.0	70	99.0	70	99.0	70.0	99.0
014	X	X				90	99.9	90	99.0						
015	X	X				90	99.9	90	99.0						
016	X					75	99.9								
017	X					80	95.0								
018	X					80	95.0								
019	X			X	X	80	95.0					90	99.0	90.0	99.9
020	X			X	X	80	95.0					90	99.0	90.0	99.9
021	X			X	X	25	70.0					94	99.9	99.0	99.9
022	X			X	X	25	70.0					94	99.9	99.0	99.9
023	X			X	X	25	98.0					90	99.9	95.0	99.9
039		X						75	90.0						
040		X						75	90.0						
041		X						40	60.0						
042		X						80	90.0						
043		X						90	98.0						
044		X						98	99.9						
045		X						85	97.0						
046	X	X	X	X	X	10	90.0	10	90.0	10	90.0	10	90.0	10.0	90.0

Table 7.1.1-f

Valid Ash, Sulfur, and Heat Contents by SCC

(* indicates that any number is accepted)

SCC Code	ASH MIN	ASH MAX	SULFUR MIN	SULFUR MAX	HEAT MIN	HEAT MAX
101001**	50	170	20	2000	24	30
101002**	10	350	20	1000	20	32
101003**	60	250	60	200	12	24
101004**	0	10	0	600	145	160
101005**	0	1	0	50	130	150
101006**	0	0	0	1	850	1200
101007**	0	10	0	999	0	1200
101008**	40	170	0	200	24	30
101009**	0	100	0	20	7	20
101011**	0	100	0	20	0	18
101012**	10	350	20	1000	16	32
101013**	*	*	*	*	*	*
101999**	*	*	*	*	*	*
102001**	50	170	20	2000	24	30
102002**	10	350	20	1000	20	32
102003**	60	250	60	200	12	24
102004**	0	10	0	600	145	160
102005**	0	1	0	50	130	150
102006**	0	0	0	1	850	1200
102007**	0	10	0	999	0	1200
102008**	40	170	0	200	24	30
102009**	0	100	0	20	7	20

Table 7.1.1-f (continued)

SCC CODE	ASH MIN	ASH MAX	SULFUR MIN	SULFUR MAX	HEAT MIN	HEAT MAX
102010**	0	10	0	1	85	110
102011**	0	100	0	20	0	18
102012**	10	350	20	1000	16	32
102013**	*	*	*	*	*	*
102999**	*	*	*	*	*	*
103001**	50	170	20	2000	24	30
103002**	10	350	20	1000	20	32
103003**	60	250	60	200	12	24
103004**	0	10	0	600	145	160
103005**	0	1	0	50	130	150
103006**	0	0	0	1	850	1200
103007**	0	10	0	999	0	1200
103009**	0	100	0	20	7	20
103010**	0	10	0	1	85	110
103012**	10	350	20	1000	16	32
103013**	*	*	*	*	*	*
103999**	*	*	*	*	*	*
201001**	0	1	0	50	130	150
201002**	0	0	0	1	850	1200
201003**	0	1	0	50	130	150

SCC CODE	ASH MIN	ASH MAX	SULFUR MIN	SULFUR MAX	HEAT MIN	HEAT MAX
201004**	0	10	0	600	145	160
20100501	*	*	*	*	*	*
20100601	*	*	*	*	*	*
201007**	0	10	0	999	0	1200
201999**	*	*	*	*	*	*
202001**	0	1	0	50	130	150
202002**	0	10	0	650	145	160
20200301	*	*	*	*	*	*
202004**	0	1	0	50	130	150
202005**	0	10	0	600	145	160
20200601	*	*	*	*	*	*
20200701	*	*	*	*	*	*
202008**	0	10	0	999	0	1200
202999**	*	*	*	*	*	*
203001**	0	1	0	50	130	150
203999**	*	*	*	*	*	*
204*****	*	*	*	*	*	*
30190099	*	*	*	*	*	*
30600101	0	10	0	600	*	*
30600102	0	10	0	999	*	*
30600103	0	10	0	600	145	160
30600104	0	10	0	999	0	1200

	ASH		SULFUR		HEAT	
SCC CODE	MIN	MAX	MIN	MAX	MIN	MAX
306009**	*	*	*	*	*	*
390001**	50	170	20	2000	24	30
390002**	10	350	20	1000	20	32
390004**	0	10	0	600	145	160
390005**	0	1	0	50	130	150
390006**	0	0	0	1	850	1200
390007**	0	10	0	999	0	1200
390008**	40	170	0	200	24	30
390009**	0	100	0	20	7	20
390010**	0	10	0	1	85	110
390999**	*	*	*	*	*	*
50190004	0	10	0	600	145	160
50190005	0	1	0	50	130	150
50190006	0	0	0	1	850	1200
50190010	0	10	0	1	85	110
50190097	*	*	*	*	*	*
50190098	*	*	*	*	*	*
50190099	*	*	*	*	*	*
50290004	0	10	0	600	145	160
50290005	0	1	0	50	130	150
50290006	0	0	0	1	850	1200
50290010	0	10	0	1	85	110
50290097	*	*	*	*	*	*
50290098	*	*	*	*	*	*
50290099	*	*	*	*	*	*
50390004	0	10	0	600	145	160
50390005	0	1	0	50	130	150
50390006	0	0	0	1	850	1200
50390010	0	10	0	1	85	110

SCC CODE	ASH		SULFUR		HEAT	
	MIN	MAX	MIN	MAX	MIN	MAX
50390097	*	*	*	*	*	*
50390098	*	*	*	*	*	*
50390099	*	*	*	*	*	*

For all SCC's not listed above, the sulfur, ash, and heat content should all be zero.

Decimal points are implied in above columns for sulphur and ash as defined on the NEDS Point Source Coding form:

Ex Ash: 170 = 17.0% ash
Sulphur: 600 = 6.00% sulphur

Table 7.1.1-g

NEDS Edit Error/Card Cross Reference

The table below gives the number associated with each of the edit error messages on the following pages and the card type (s) in which the error might be detected in NE061.

Error Number	Type	Action Code	Card Number
1	A,P,V	A,C*	1, 2, 3, 4, 5, 6, 7
2	A,P,V	A,C*	1, 2, 3, 4, 5, 6, 7
3	A,P,V	A,C*	1, 2, 3, 4, 5, 6, 7
4	P,V	A,C*	1, 2, 3, 4, 5, 6, 7
5	P,V	A,C*	2, 3, 4, 5, 6, 7
6	P	A,C	6, 7
7	A,P,V,	A,C*,D	1, 2, 3, 4, 5, 6, 7
8	A,P,V	A,C*,D	1, 2, 3, 4, 5, 6, 7
9	A,P,V	A,C*,D	1, 2, 3, 4, 5, 6, 7
10	A	D	2, 3, 4, 5, 6, 7
	P,V	D	3, 4, 5, 7
11	P,V	A	1
12	P	A,C	3
13	P	A,C	3
14	P	A,C	4
15	P	A,C	4
16	P	A,C	4
17	P	A,C	6
18	A,P	A,C	1, 2, 3, 4, 5, 6, 7

Error Number	Type	Action Code	Card Number
40	P	A,C	1
41	P	A	1
42	P	A,C	1
43	A	A,C*	1,7
	P,V	A,C*	1, 2, 3, 4, 5, 6, 7
44	P	A,C*	1
45	P	A,C	2
46	P	A	2
47	P	A,C	2
48	P	A,C	2
49	P	A,C	2
50	P	A,C	2
51	P	A,C	2
52	P	A,C	2
53	P	A,C*	2
54	P	A,C	2

*Normally the error message for a 'c' action code is only produced when the Field in error is non-blank. The error messages for the ones with * are produced even if the field is blank.

Error Number	Type	Action Code	Card Number
55	P	A, C	2
56	P	A, C	3
57	P	A, C	3
58	P	A	3
59	P	A	4
60	P	A, C	4
61	P	A, C	4
62	P	A, C	4
63	P	A, C	4
64	P	A, C	4
65	P	A, C	4
66	P	A, C	4
67	P	A, C	4
68	P	A, C	5
69	P	A, C	5
70	P	A, C	5
71	P	A, C	5
72	P	A, C	5
73	P	A, C	5
74	P	A, C	5
75	P	A, C	5
76	P	A, C	5
77	P	A	6
78	P	A, C	6
79	P	A, C	6
80	P	A, C	6
81	P	A, C	6
82	P	A, C	6
83	P	A, C	6
84	P	A	6
85	P	A, C	6
86	P	A, C	6
100	A	A	7
101	A	A, C	1
102	A	A, C	1
125	V	A, C	6, 7

NEDS EDIT SUMMARY

At the completion of an NE061 run a summary is presented which gives the total number of input records read, the number of records rejected, the number of transactions passing edit, and the number of select cards written. Figure 7.1.1-e is an example of this output. This summary should be used first to verify that the number of records output from the pre-edit process match the number input to the edit. Next the number of input records rejected should be noted and the edit diagnostics report examined to identify specific errors. Finally, it should be verified that the total number of the transactions written to post-edit, plus any rejected records, equals the number of records input.

```
6478  NEDS Input Records Read
  65  Input Records Rejected
6413  Point Source Transactions Written
   0  Area Source Transactions Written
   0  Verification Transactions Written
6413  Total Transactions to Post-Edit Process
 228  NEDS Selection Cards Written
```

Figure 7.1.1.e NEDS Edit Summary

The Regional Office Data Processing steps include all processing from the time the data are received from the State Agency until the data are forwarded to NADB for updating. These individual steps are shown in Figures 7.1.2-a and b and include: (1) Receipt of data, (2) Creation of a UNIVAC compatible tape, (3) SAROAD Pre-Edit, (4) SAROAD Edit, (5) Merge, and (6) Error Resolution.

Receipt of Data

The Receipt of Data Step includes the maintenance of the SAROAD Control Log as discussed in Section 6.2.2 as well as any screening procedures which are utilized by Regional Offices to evaluate data. This step may also include a notification of the State that the data have been received.

Tape Creation

The creation of a UNIVAC compatible tape involves several different alternatives based on the format in which the data are received. If the data are on keypunched cards, the card-to-tape program (AE004) is utilized to create a tape which can be input to the Pre-Edit and Edit programs. If the data are received on magnetic tape, the tape may be mailed to the U1110, or the data may be read from the tape at the R.O. and transmitted directly to the U1110. If the magnetic tape is mailed to the U1110, a program (AE001, NA046, or NA047) must be utilized to convert the tape for input to the Pre-Edit and Edit programs. Program AE001 will convert one or more EBCDIC or BCD tapes, NA046 will convert a UNIVAC field data tape, and NA047 will convert a BCD tape. The programs, AE001, AE004, NA046, and NA047, create a labeled ASCII COBOL tape with 80 characters per record and 4000 characters per block.

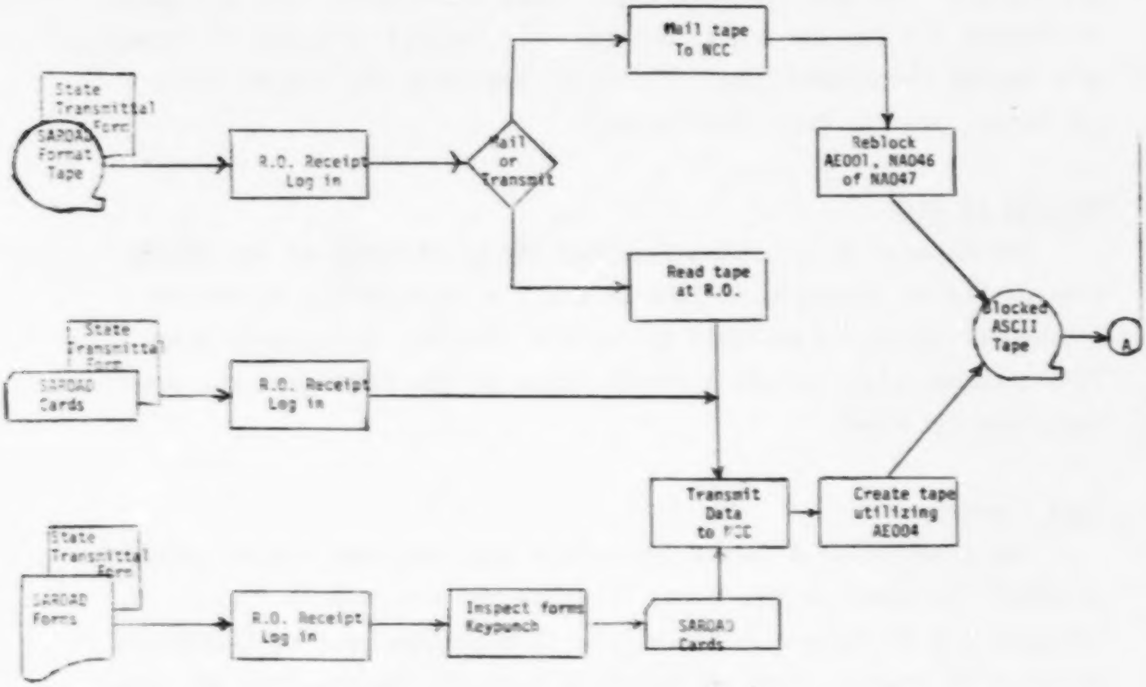

State Transmittal Form
SARDAD Format Tape
R.O. Receipt Log in
Mail or Transmit
Mail tape To NCC
Read tape at R.O.
Reblock AE001, NA046 of NA047
Blocked ASCII Tape
A
State Transmittal Form
SARDAD Cards
R.O. Receipt Log in
Transmit Data to NCC
Create tape utilizing AE004
State Transmittal Form
SARDAD Forms
R.O. Receipt Log in
Inspect forms Keypunch
SARDAD Cards

Figure 7.1.2-a Regional Office Data Processing

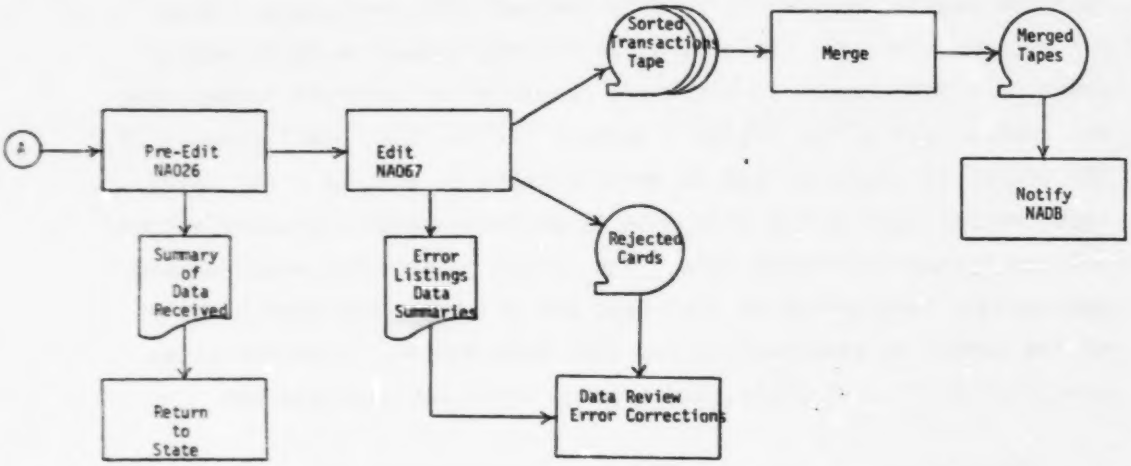

A
Pre-Edit NA026
Edit NA067
Sorted Transactions Tape
Merge
Merged Tapes
Notify NADB
Summary of Data Received
Error Listings Data Summaries
Rejected Cards
Return to State
Data Review Error Corrections

Figure 7.1.2-b Regional Office Data Processing.

Pre-Edit

The SAROAD Pre-Edit program (NA026) enables the EPA Regional Offices to determine the quantity and identity of SAROAD data submitted for processing. NA026 requires 1.5 seconds to process approximately 1000 SAROAD values.

NA026 reads SAROAD card-image (80 character) records from a standard-labeled magnetic tape file blocked 4000 characters. When all records are read, the program prints the number of tape records which have been read. If the first character of an input record does not contain one of the digits 1 through 3 (for form type 1 through 3), the record is rejected, and an error message is printed. All valid input records are sorted according to ascending site/pollutant/method/interval/year/month/units code. The sorted records are examined and each unique combination of sort keys are printed along with a tally of the number of observations for that combination. Subtotal lines are printed for each state, and a grand total for the data set.

NA026 does not create or modify any cataloged mass storage files, nor does it require any previously created files except for the magnetic tape input data. It is written in ASCII COBOL for use on the UNIVAC 1110 computer system at Research Triangle Park.

Figure 7.1.2-c is an example of the record count and error messages produced. The format for the error message is:

Card Image Number X is Rejected (Card Image)

```
[illegible] INPUT RECORDS FROM CARDS

CARD IMAGE NUMBER      1 IS REJECTED: [illegible]
CARD IMAGE NUMBER      2 IS REJECTED: [illegible]
CARD IMAGE NUMBER    194 IS REJECTED: [illegible]
[illegible] INPUT RECORDS FROM TAPE
[illegible]* Total Input Records


*See Figure 7.2.2-a  SAROAD Batch Sheet
```

Figure 7.1.2-C Pre-Edit Record Count and Error Messages

where X is the card or record number for the rejected card.

Figure 7.1.2-d shows the EPA Regional Office Summary of SAROAD Data Received which is generated by NA026. The total number of values for each state and for the entire set of records in a given data set are also included. These reports can be used to verify that all cards which should be in a data set are in fact present.

Edit

SAROAD data submitted to EPA Regional Offices are processed through the EDITOR program (NA067) to determine if the data meet minimum requirements for updating of SAROAD files. Records with data failing to meet the minimum requirements are rejected, and the data are not updated to SAROAD files.

NA067 was developed to edit and create update transactions to the SAROAD data base for data submitted on forms 1 through 3. NA067 is actually a control program that calls several subprograms to perform the following functions: (1) Edit, (2) Summarization, (3) Raw data listings, and (4) Data screening.

Input to NA067 is the tape file that was produced in the Tape Creation Step and that contains the data as received on forms 1 through 3 from State or local agencies. In addition to tape input, the user must input a program control card to indicate which of the above functions will be performed and control cards as required by each function.

```
 N A T I O N A L   A E R O M E T R I C   D A T A   B A N K                         PAGE 0013
EPA REGIONAL OFFICE SUMMARY OF DATA RECEIVED AS OF 02/08/78

 SITE       AG/    POL-MTH    INT    YEAR    MONTH    UNIT    TALLY
 CODE       PRJ     CODE      CODE

112280001   F01   1110131      7      72      01       01        1
                                      72      01       05        1
                                      72      01       07        1
                                      72      01       08        1
                  1212892      C      72      01       01       24
                  4240111      1      72      01       01        6
                                      72      01       02        1
                                      72      01       05        1
                                      72      01       07        1
                                      72      01       08        1
                  4240114      1      72      01       08        1

                  TOTAL VALUES SUBMITTED FOR STATE 11                39

TOTAL NUMBER OF VALUES TO BE PROCESSED BY THE EDITOR:               866*
```

*See Figure 7.2.2-a SAROAD Batch Sheet

Figure 7.1.2-d Pre-Edit Listing

The control program reads the input data from tape and creates sorted mass storage files for input to the other subprograms. To create sorted files, the cards require reformatting so a form 2 will only contain one pollutant per form and a form 3 will be converted to a form 2 with one pollutant per form. The audit trail for the control program is given in Figure 7.1.2-e and includes the number of card images read, number of invalid form types, number of valid form types, and number of images written to the sorted mass storage file.

The edit subprogram reads the sorted mass storage file and requires a master control card as card input to specify the update action code as well as other options specific only to the edit. The correct action code must be assigned to ensure that the data are not rejected by the update program. The action codes are: (1) change - to modify an existing value on the data bank, (2) add - to input data values which have not been submitted to the data bank, and (3) delete - to remove an existing value from the data bank.

The edit subprogram reads each image from the mass storage file, assigns a record number to it, and checks each individual data field for content as well as checking several fields together for consistency. The specific edit checks are given in Table 7.1.2-a.

The edit subprogram produces a transaction tape, an error tape, and printed output. The transaction tape contains a record with an update action code for each raw data value and will be utilized as input for merges by the R.O. or NADB. The error tape contains the

```
@SORTF 75000,21/W
*SORTF 12R1*  --  01/30/79    17:17:25
  1.  @ASG,T XB.,F33/16/POS/16,ALC001 .
  2.  @ASG,T XA.,F33/147/TRK/147,ALC001 .
  3.  @ASG,T RSCORE.,F33/30/TRK/30,ALC001 .


@ASG,T TEMP1.,F//POS/30


@ASG,T TEMP2.,F//POS/30


@ASG,T TEMP3.,F//POS/30


@SETC,0


@XQT TPF$.NA067


@ADD,PLE CARD-FILE
************************************
SELECTED MASTER CONTROL CARD OPTIONS
 GROUP-OPTION : ONLY ADDITIONS WILL BE CREATED.
 SUPPRESS HIGH VALUE CHECKING.
 START EDITING AT RECORD # 000001
 STOP EDITING AT RECORD # 999999
 DATA VALUES OF *9999* ARE NOT DELETIONS
***********************************************


                                  5*
@ADD,PLE TPF$.XQT-NAA067 .            @@@ADD,PLE TPF$.XQT-NAE067 .           @@
TOTAL CARD IMAGES READ =      392
INVALID TYPES READ =        7
VALID CARD FORM-TYPES =     385
NUMBER OF IMAGES WRITTEN =      771
 17:18:43   NA067
 DRUM 00:00:00.799 DISC 00:00:01.578 TAPE 00:00:00.071 I/O  00:00:02.449
 CCER 00:00:12.081 CAU  00:00:01.180 MEMY 00:00:07.083-0065K


@ASG,A NADB*NADB-PARMFL.
FAC WARNING        040200000200


@ASG,A NADB*NADB-STE-INX.
FAC WARNING        040000000200


@COPY,A    NADB*TEST-ABS/SDS.NAA067,TPF$.NAA067
FURPUR 27R3C E33 SL73R1 01/30/79 17:18:44
 1 ABS
 17:18:46   FURPUR
```

*See Figure 7.2.2-a SAROAD Batch Sheet

Figure 7.1.2-e Audit Trail for Control Program

Table 7.1.2-a Specific Validation Procedures For Input Data in SAROAD Format

(1) Form Number

Valid form numbers are 1 through 3.

(2) State Code

This two digit field must correspond to the proper SAROAD State code. Presently, the USA codings are 01 through 55 representing the States and territories arranged alphabetically.

(3) Area Code

This four digit code must correspond to the proper SAROAD area code within that specific State (or country). Within each State, the names of all incorporated areas with a population of more than 2500, and all counties, are arranged alphabetically and assigned a four-digit number. County codes are used only for stations located outside incorporated areas.

(4) Site Code

Specified sampling sites are designated by a three-digit number on forms #1-3. This code is unique for a sampling site address within State and area. Again, only numerics 1-9 are valid in this code. The SAROAD site must have been submitted and updated to the site file before the data can enter the bank. Otherwise the data will be rejected.

Table 7.1.2-a Specific Validation Procedures for Input Data in SAROAD Format

(5) Agency Code

This alphabetic character represents the type of agency performing the laboratory analysis. Valid characters are A-Z.

(6) Project Code

The project codes classify projects by the reasons for generating the data. Only numerics 1-9 are valid in the project code (01-99).

(7) Time Code

A single alphanumeric character code is used for the time interval during which the data are observed or monitored.

Note that this code depends on the air monitoring instrumentation, i.e., a high vol sampler runs for a 24 hour period, therefore, generating a 24 hour suspended particulate value. A method which monitors on an hourly basis should produce up to 24 values per day and will not be represented on NADB by one 24 hour arithmetic average. On less than 24 hour sampling forms the only valid codes are 1 (1 hr.), 2 (2 hr.), B (3 hr.), 3 (4 hr.), 4 (6 hr.), 5 (8 hr.), and 6 (12 hr.).

On 24 hr. or greater forms the only valid interval codes are 7 (24 hr.), 8 (1 mo.), 9 (3 mo.), A (1 week), C (composite data), and D (yearly).

Table 7.1.2-a Specific Validation Procedures For Input Data in SAROAD Format

(8) Parameter Code

This five digit numerical SAROAD code permits a branching subcategorization of pollutants.

(9) Method Code

This identifies the instrument type and/or the analytical method with two numeric characters. It is unique to a particular parameter. Generally the continuous (or less than 24 hr. sampling interval) methods will be less than 50 and the 24 hr. or greater methods will be greater than 50.

(10) Unit Code

This two-digit code represents the units in which the values are given.

Note: In checking the parameter, method, time code, and unit codes, the program will reject all values associated with an invalid combination. Parameter method 4240191 is invalid for creating add transactions, but change or delete transactions will be created.

(11) Decimal Code

This single-digit numeric code from 0 to 4 (and occasionally 5) indicates the number of digits in the data field that are to fall to the right of the decimal point. Generally data will be conveniently scaled by the chemist with the proper units code to make the value require a decimal point between 0 to 4.

Table 7.1.2-a Specific Validation Procedures For Input Data in SAROAD Format

(12) Value or Data Field

The value must have four digits and must be keypunched right-justified with leading left zeroes or blanks.

A field filled with '9999' will be treated as a blank. The meteorological parameters 62101, 62102, 62103, 62104, 62105, 62106, may be reported with negative values with a left-justified negative sign and zero filled. For form 1, if a data value is rejected, all data values for that card are rejected while on all other forms only the individual data value which fails edit is rejected.

(13) Year

The last two digits of the year in which observations were taken. Years 57-present are valid and any other year will be rejected.

(14) Month

This two digit numerical code designates 01 (January) through 12 (December).

(15) Day

The calendar day of the month in which samples or observations were taken (01 through 31). The program will check for only 30 days in April, June, September, and November, and 28 or less days in February excepting Leap Year.

Table 7.1.2-a Specific Validation Procedures For Input Data in SAROAD Format

(16) Start Hour

Two digit numeric code signifying the hour the sampling began ("00 for midnight through "23" for 11 p.m.).

The following table displays allowable start hours for time interval given:

Time INTERVAL CODE	START HOUR	VALUES/SAROAD CARD
1	00,12	12 (½ day)
2	00,01	12 (1 day)
B	00,01,02	8
3	00,01,02,03	6
4	00,01,02,03,04,05	4
5	00,01,02,03,04,05,06,07	3
6	00,01,02,03,04,05,06,07,08, 09,10,11	2
7,8,9	00-23	1 (per pollutant)
C,D	Not used	

(17) Data Values

(a) The value when converted to standard units must be less than the maximum storage value of '16383'.

Table 7.1.2-a Specific Validation Procedures For Input Data in SAROAD Format

(b) For the pollutants listed below, the value when converted to standard units must not exceed the values listed. This validation may be overridden for these high values which are actually valid except for 61102.

Pollutant	Code	Maximum	
Particulate	11101	2000 ug/m^3	
Lead	12128	100 ug/m^3	
Carbon Monoxide	42101	115 ug/m^3	(100ppm)
Sulfur Dioxide	42401	5240 ug/m^3	(2ppm)
Nitrogen Oxide	42601	3690 ug/m^3	(3ppm)
Nitrogen Dioxide	42602	3760 ug/m^3	(2ppm)
Oxides of Nitrogen	42603	9400 ug/m^3	(5ppm)
Total hydrocarbons	43101	9810 ug/m^3	(15ppm)
Non-Methane hydrocarbons	43102	6540 ug/m^3	(10ppm)
Oxidants	44101	1372 ug/m^3	(0.7ppm)
Ozone	44201	1372 ug/m^3	(0.7ppm)
Wind Direction	61102	360°	

(18) Time Interval for Composite Data

This numeric code is limited to '7' (24 hour sampling interval).

(19) Composite Type and Period

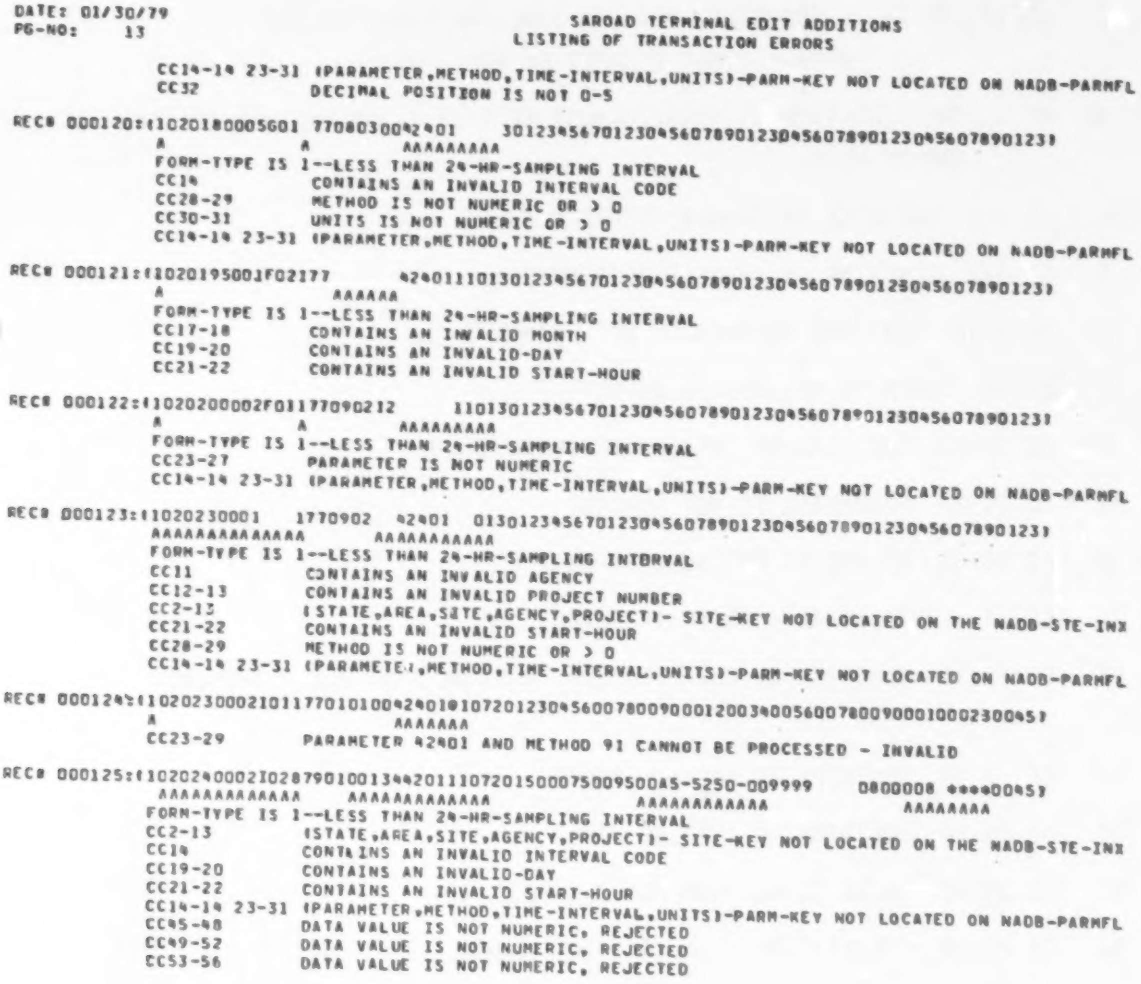
The type is limited to numeric codes 1-5 and period is limited to 00-52. The combination of these codes must be valid.

forms 1 and 2 that failed the edit and requires corrections. The printed output includes the error listing and the audit trail. An error listing is given in Figure 7.1.2-f and includes the card image with the erroneous fields marked and a list of errors. Additional error messages are given in Table 7.1.2-b. The audit trail is given in Figure 7.1.2-g and should be utilized with recordkeeping procedures described in Section 7.2.2.

The edit subprogram is the only subprogram that must be executed to create data to update SAROAD. The other subprograms should be executed to validate the data before submission for updating.

The summarization subprogram reads the sorted mass storage file and produces printed summaries of the raw data which are called "Transaction Proof Lists". The summaries are produced on a site, pollutant, year basis and are designed to display information related to the air quality standards for criteria pollutants. The Transaction Proof List contains a unique format for each criteria pollutant and a common format for all noncriteria pollutants. Figure 7.1.2-h is an example of Transaction Proof List for sulfur dioxide and Figure 7.1.2-i is an example for noncriteria pollutants.

The raw data listing subprogram produces a raw data listing for all data on the tape. This raw data listing provides output for data analysis but has the potential to produce a large volume of output. Figure 7.1.2-j is an example of the raw data list.



```
DATE: 01/30/79
PG-NO:     13                                       SAROAD TERMINAL EDIT ADDITIONS
                                              LISTING OF TRANSACTION ERRORS

           CC14-14 23-31 (PARAMETER,METHOD,TIME-INTERVAL,UNITS)-PARM-KEY NOT LOCATED ON NADB-PARMFL
           CC32          DECIMAL POSITION IS NOT 0-5

REC# 000120:(1020180005601 7708030042401     3012345670123045607890123045607890123045607890123)
           A        A     AAAAAAAAA
           FORM-TYPE IS 1--LESS THAN 24-HR-SAMPLING INTERVAL
           CC14          CONTAINS AN INVALID INTERVAL CODE
           CC28-29       METHOD IS NOT NUMERIC OR > 0
           CC30-31       UNITS IS NOT NUMERIC OR > 0
           CC14-14 23-31 (PARAMETER,METHOD,TIME-INTERVAL,UNITS)-PARM-KEY NOT LOCATED ON NADB-PARMFL

REC# 000121:(1020195001F02177       4240111013012345670123045607890123045607890125045607890123)
           A            AAAAAA
           FORM-TYPE IS 1--LESS THAN 24-HR-SAMPLING INTERVAL
           CC17-18       CONTAINS AN INVALID MONTH
           CC19-20       CONTAINS AN INVALID-DAY
           CC21-22       CONTAINS AN INVALID START-HOUR

REC# 000122:(1020200002F01177090212      11013012345670123045607890123045607890123045607890123)
           A        A     AAAAAAAAA
           FORM-TYPE IS 1--LESS THAN 24-HR-SAMPLING INTERVAL
           CC23-27       PARAMETER IS NOT NUMERIC
           CC14-14 23-31 (PARAMETER,METHOD,TIME-INTERVAL,UNITS)-PARM-KEY NOT LOCATED ON NADB-PARMFL

REC# 000123:(1020230001   1770902  42401  013012345670123045607890123045607890123045607890123)
           AAAAAAAAAAAAAA      AAAAAAAAAAA
           FORM-TYPE IS 1--LESS THAN 24-HR-SAMPLING INTORVAL
           CC11          CONTAINS AN INVALID AGENCY
           CC12-13       CONTAINS AN INVALID PROJECT NUMBER
           CC2-13        (STATE,AREA,SITE,AGENCY,PROJECT)- SITE-KEY NOT LOCATED ON THE NADB-STE-INX
           CC21-22       CONTAINS AN INVALID START-HOUR
           CC28-29       METHOD IS NOT NUMERIC OR > 0
           CC14-14 23-31 (PARAMETE:,METHOD,TIME-INTERVAL,UNITS)-PARM-KEY NOT LOCATED ON NADB-PARMFL

REC# 000124:(10202300021011770101004240101072012304560078009000120034005600780090001000230045)
           A                AAAAAAA
           CC23-29       PARAMETER 42401 AND METHOD 91 CANNOT BE PROCESSED - INVALID

REC# 000125:(10202400021028790100134420111072015000750095 00A5-5250-009999    0800008 ****0045)
            AAAAAAAAAAAAA   AAAAAAAAAAAAA            AAAAAAAAAAAA            AAAAAAAA
           FORM-TYPE IS 1--LESS THAN 24-HR-SAMPLING INTERVAL
           CC2-13        (STATE,AREA,SITE,AGENCY,PROJECT)- SITE-KEY NOT LOCATED ON THE NADB-STE-INX
           CC14          CONTAINS AN INVALID INTERVAL CODE
           CC19-20       CONTAINS AN INVALID-DAY
           CC21-22       CONTAINS AN INVALID START-HOUR
           CC14-14 23-31 (PARAMETER,METHOD,TIME-INTERVAL,UNITS)-PARM-KEY NOT LOCATED ON NADB-PARMFL
           CC45-48       DATA VALUE IS NOT NUMERIC, REJECTED
           CC49-52       DATA VALUE IS NOT NUMERIC, REJECTED
           CC53-56       DATA VALUE IS NOT NUMERIC, REJECTED
```

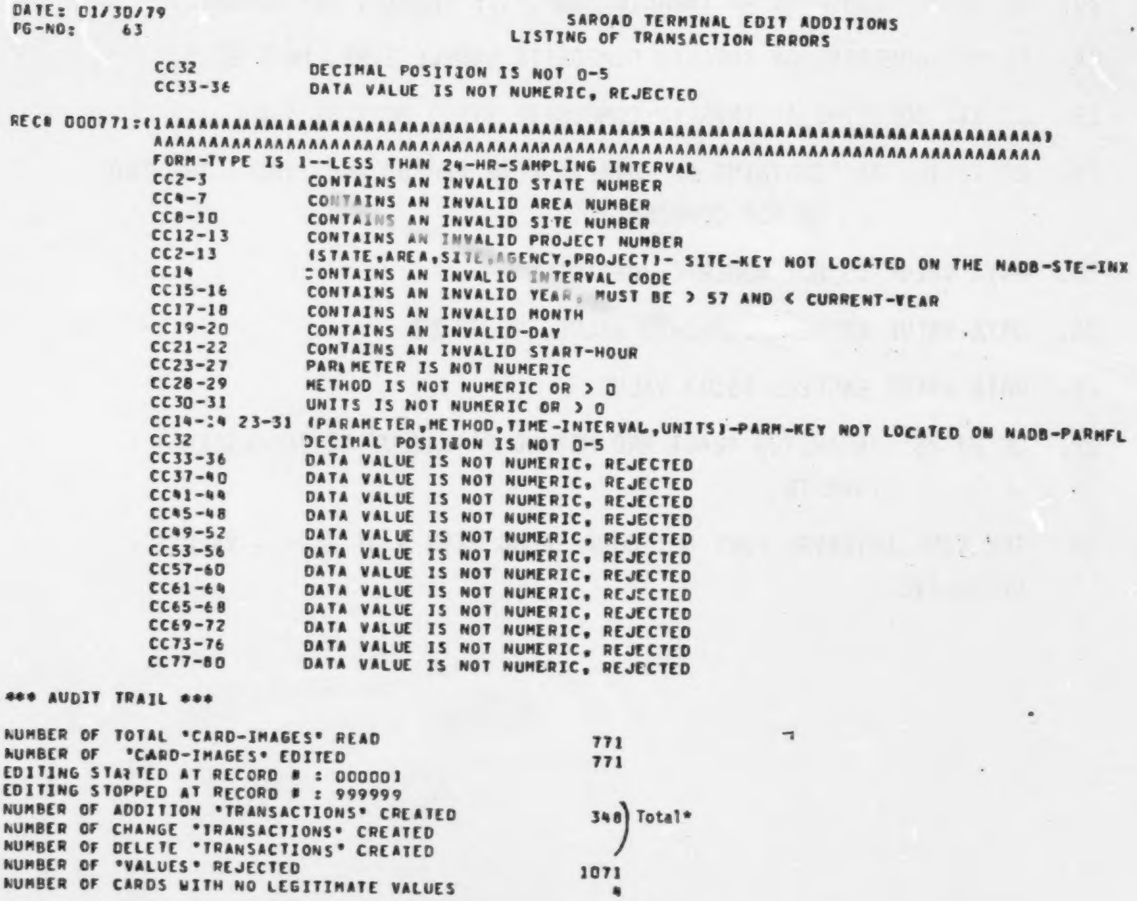
Figure 7.1.2-f Edit Error Listings

Table 7.1.2-b Editor Error Messages

1. CC 2-13 (STATE, AREA, SITE, AGENCY, PROJECT) - SITE KEY NOT LOCATED ON THE NADB-STE-INX.
2. CC 14, 23-31 (PARAMETER, METHOD, TIME-INTERVAL, UNITS) PARM-KEY NOT LOCATED ON NADB-PARMFL.
3. CC 1 THE FORM-TYPE IS INVALID-MUST BE 1 or 2--NO FURTHER EDITING CAN BE DONE.
4. CC 2-3 CONTAINS AN INVALID STATE NUMBER.
5. CC 4-7 CONTAINS AN INVALID AREA NUMBER.
6. CC 8-10 CONTAINS AN INVALID SITE NUMBER.
7. CC 11 CONTAINS AN INVALID AGENCY.
8. CC 12-13 CONTAINS AN INVALID PROJECT NUMBER.
9. CC 23-27 PARAMETER IS NOT NUMERIC.
10. CC 28-29 METHOD IS NOT NUMERIC OR > 0.
11. CC 14 CONTAINS AN INVALID INTERVAL CODE.
12. CC 15-16 CONTAINS AN INVALID YEAR, MUST BE > 57 and ≤ CURRENT-YEAR.
13. CC 17-18 CONTAINS AN INVALID MONTH.
14. CC 19-20 CONTAINS AN INVALID DAY.
15. CC 30-31 UNITS IS NOT NUMERIC OR > 0.
16. CC 21-22 CONTAINS AN INVALID START-HOUR.
17. CC 21-22 CONTAINS AN INVALID START HOUR, MUST BE 00-23.
18. CC 32 DECIMAL POSITION IS NOT 0-5.

Table 7.1.2-b Editor Error Messages

19. CC 17-18 CONTAINS AN INVALID COMPOSITE PERIOD, MUST BE 00-52.
20. CC 19-20 CONTAINS AN INVALID COMPOSITE SAMPLE, NOT NUMERIC.
21. CC 22 CONTAINS AN INVALID COMPOSITE SAMPLE TIME, MUST BE 7.
22. CC 21 CONTAINS AN INVALID COMPOSITE TYPE, MUST BE 1-5.
23. CC 17-18, 21 CONTAINS AN INVALID COMP PERIOD AND TYPE - THE TWO DO NOT CORRESPOND.
24. DATA VALUE IS NOT NUMERIC, REJECTED.
25. DATA VALUE EXCEEDS STANDARD VALUE, REJECTED.
26. DATA VALUE EXCEEDS 16383 VALUE.
27. CC 23-29 PARAMETER 42401 AND METHOD 91 CANNOT BE PROCESSED - INVALID.
28. THE TIME INTERVAL DOES NOT CORRESPOND WITH # OF REPT - VALUES - EXCESSIVE.



```
DATE: 01/30/79
PG-NO:     63                                    SAROAD TERMINAL EDIT ADDITIONS
                                               LISTING OF TRANSACTION ERRORS
              CC32           DECIMAL POSITION IS NOT 0-5
              CC33-36        DATA VALUE IS NOT NUMERIC, REJECTED

REC# 000771:(1AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA)
              AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA)
              AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
              FORM-TYPE IS 1--LESS THAN 24-HR-SAMPLING INTERVAL
              CC2-3          CONTAINS AN INVALID STATE NUMBER
              CC4-7          CONTAINS AN INVALID AREA NUMBER
              CC8-10         CONTAINS AN INVALID SITE NUMBER
              CC12-13        CONTAINS AN INVALID PROJECT NUMBER
              CC2-13         (STATE,AREA,SITE,AGENCY,PROJECT)- SITE-KEY NOT LOCATED ON THE NADB-STE-INX
              CC14           CONTAINS AN INVALID INTERVAL CODE
              CC15-16        CONTAINS AN INVALID YEAR, MUST BE > 57 AND < CURRENT-YEAR
              CC17-18        CONTAINS AN INVALID MONTH
              CC19-20        CONTAINS AN INVALID-DAY
              CC21-22        CONTAINS AN INVALID START-HOUR
              CC23-27        PARAMETER IS NOT NUMERIC
              CC28-29        METHOD IS NOT NUMERIC OR > 0
              CC30-31        UNITS IS NOT NUMERIC OR > 0
              CC14-14 23-31  (PARAMETER,METHOD,TIME-INTERVAL,UNITS)-PARM-KEY NOT LOCATED ON NADB-PARMFL
              CC32           DECIMAL POSITION IS NOT 0-5
              CC33-36        DATA VALUE IS NOT NUMERIC, REJECTED
              CC37-40        DATA VALUE IS NOT NUMERIC, REJECTED
              CC41-44        DATA VALUE IS NOT NUMERIC, REJECTED
              CC45-48        DATA VALUE IS NOT NUMERIC, REJECTED
              CC49-52        DATA VALUE IS NOT NUMERIC, REJECTED
              CC53-56        DATA VALUE IS NOT NUMERIC, REJECTED
              CC57-60        DATA VALUE IS NOT NUMERIC, REJECTED
              CC61-64        DATA VALUE IS NOT NUMERIC, REJECTED
              CC65-68        DATA VALUE IS NOT NUMERIC, REJECTED
              CC69-72        DATA VALUE IS NOT NUMERIC, REJECTED
              CC73-76        DATA VALUE IS NOT NUMERIC, REJECTED
              CC77-80        DATA VALUE IS NOT NUMERIC, REJECTED

*** AUDIT TRAIL ***

NUMBER OF TOTAL 'CARD-IMAGES' READ                   771
NUMBER OF  'CARD-IMAGES' EDITED                      771
EDITING STARTED AT RECORD # : 000001
EDITING STOPPED AT RECORD # : 999999
NUMBER OF ADDITION 'TRANSACTIONS' CREATED            348) Total*
NUMBER OF CHANGE 'TRANSACTIONS' CREATED                 )
NUMBER OF DELETE 'TRANSACTIONS' CREATED                /
NUMBER OF 'VALUES' REJECTED                         1071
NUMBER OF CARDS WITH NO LEGITIMATE VALUES              4
```

*See Figure 7.2.2-a SAROAD Batch Sheet

7.1.2-g Audit Trail for Editor

```
01/30/79                                        RAW DATA TRANSACTION PROOF LIST                                                  PAGE    9

                                                    STATE 13 -             IDAHO

                                                  SULFUR DIOXIDE        - 42401      STD UNITS NAME  -MICROGRAMS/CUBIC METER

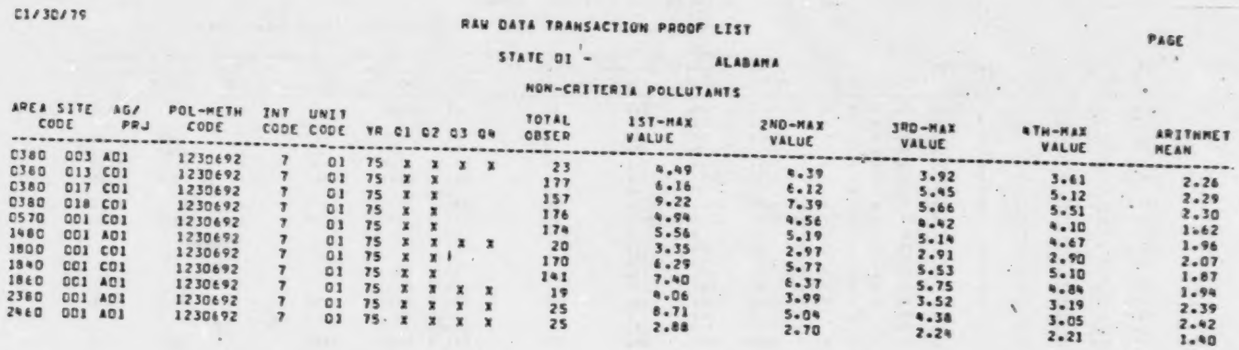
                                                       ******** 24 HOUR *********          ********* 3 HOUR *********  **** 1 HOUR****
AREA SITE AG/          INT  RPT                  TOTAL  1ST-MAX  2ND-MAX  NON-OVLP    ARITH   1ST-MAX  2ND-MAX  NON-OVLP 1ST-MAX 2ND-MAX
  CODE     PRJ METH CODE UNIT YR 01 02 03 04 OBSER   VALUE    VALUE    > 365       MEAN    VALUE    VALUE    > 1300   VALUE   VALUE
-----------------------------------------------------------------------------------------------------------------------------------------
0380  004 F02   14    1    07  76  X  X  X  X  7766     595      595      14          62     1843     1694       6      2489    2306
0060  004 F02   91    7    01  76  X  X  X  X    61     147       79                  12
0220  007 F01   14    1    07  76  X  X  X  X  7929      51       51       0          18       92       87       0       131     105
0420  014 F02   14    1    07  76  X  X  X  X  8092     198      194       0          27      799      773       0      1389     943
0420  015 J02   14    1    07  76  X  X  X  X  5506     267      262       0          63?    1249      970       0      2410    1415
0840  002 F02   14    1    07  76  X  X  X  X  7728    1455     1396      96         256 *   2865     2865      98      3720    3720
0840  002 F02   91    7    01  76     X              2      90       49                  70?
0840  011 J02   14    1    07  76  X  X  X  X  8497    1901     1812      62         188 *   4113     3921      58      5371    5266
0840  012 J02   14    1    07  76  X  X  X  X  8432    1527     1464      23         149 *   3790     3327      20      5528    4140
1040  001 F01   91    7    01  76  X  X  X  X    51       8        6                   3
1420  016 F05   91    7    01  76  X  X  X  X    89     125      113                  22
1420  017 F05   91    7    01  76  X  X  X  X    83     441      290                  65
1420  019 F05   91    7    01  76  X  X  X  X    90     274      130                  25
1420  020 F05   91    7    01  76  X  X  X  X    89     256      177                  49
1420  021 F02   14    1    07  76  X  X  X  X  8206    1521     1516     110         252 *   3144     3135      80      3537    3406
1420  021 F02   91    7    01  76     X              1     121        0                 121?*
1420  021 F05   91    7    01  76  X                 3     307      272                 277?*
1420  026 J02   14    1    07  76  X  X  X  X  8545     948      940      24         127 *   4017     3747      15      6052    3878





               TOTAL OBSERVATIONS FOR SULFUR DIOXIDE POLLUTANT      =   72414
NOTE: ? = ARITHMETIC MEAN NOT MEETING CRITERIA
      * = ARITHMETIC MEAN > 80
```

Figure 7.1.2-h Transaction Proof for Sulfur Dioxide



```
01/30/79                                    RAW DATA TRANSACTION PROOF LIST
                                                                                                                 PAGE
                                             STATE 01 -           ALABAMA

                                              NON-CRITERIA POLLUTANTS
AREA SITE  AG/   POL-METH  INT  UNIT                         TOTAL       1ST-MAX       2ND-MAX       3RD-MAX       4TH-MAX      ARITHMET
  CODE     PRJ    CODE     CODE CODE  YR  Q1  Q2  Q3  Q4     OBSER       VALUE         VALUE         VALUE         VALUE        MEAN
-------------------------------------------------------------------------------------------------------------------------------------
0380  003 A01    1230692    7    01   75  X   X   X   X        23         4.49          4.39          3.92          3.61          2.26
0380  013 C01    1230692    7    01   75  X   X               177         6.16          6.12          5.45          5.12          2.29
0380  017 C01    1230692    7    01   75  X   X               157         9.22          7.39          5.66          5.51          2.30
0380  018 C01    1230692    7    01   75  X   X               176         4.94          4.56          4.42          4.10          1.62
0570  001 C01    1230692    7    01   75  X   X               174         5.56          5.19          5.14          4.67          1.96
1480  001 A01    1230692    7    01   75  X   X   X   X        20         3.35          2.97          2.91          2.90          2.07
1800  001 C01    1230692    7    01   75  X   X               170         6.29          5.77          5.53          5.10          1.87
1840  001 C01    1230692    7    01   75  X   X               141         7.40          6.37          5.75          4.84          1.94
1860  001 A01    1230692    7    01   75  X   X   X   X        19         4.06          3.99          3.52          3.19          2.39
2380  001 A01    1230692    7    01   75  X   X   X   X        25         8.71          5.04          4.38          3.05          2.42
2460  001 A01    1230692    7    01   75  X   X   X   X        25         2.88          2.70          2.24          2.21          1.40
```

Figure 7.1.2-i Transaction Proof For Noncriteria Pollutants

```
RUN DATE: 79/02/13
                                                       RAW DATA LISTING                    DECIMAL MEANS 9999                     PAGE 0002
F ST AREA STE A PJ T    DATE    ST  PARAM MD   UN D
*                  I  YR MO DY  HR                            .....................D A T A.....................
                                                 P     1     2     3     4     5     6     7     8     9    10    11    12
--------------------------------------------------------------------------------------------------------------------------------
1 26 4280 007 N 01 1  76 01 08  00  44101 14  07 2                                                                    0002
1                  1  76 01 08  12  44101 14  07 2  0003  0005  0005  0004  0005  0003  0005  0006  0006  0006  0006  0006
1                  1  76 01 09  00  44101 14  07 2  0006  0006  0005        0006  0006  0006  0006  0006  0006  0006  0007
1                  1  76 01 09  12  44101 14  07 2  0007  0008  0009  0009  0008  0009  0009  0009  0009  0009  0009  0009
1                  1  76 01 10  12  44101 14  07 2  0011  0010  0011  0011  0011  0011  0011  0011  0011  0012  0012  0012
1                  1  76 01 19  12  44101 14  07 2     0     0     0     0     0     0     0     0     0     0     0     0
1                  1  76 01 20  00  44101 14  07 2     0     0     0        0002  0001  0001  0001  0001  0001  0001  0002
1                  1  76 01 20  12  44101 14  07 2  0002  0003  0003  0005  0006  0007  0006  0006  0005  0004  0004  0004
1                  1  76 01 21  00  44101 14  07 2  0004  0004  0005           0     0     0     0     0     0  0001  0002
1                  1  76 01 21  12  44101 14  07 2  0003  0004  0006  0007  0007  0008  0007  0006  0005  0004  0004  0003
1                  1  76 01 22  00  44101 14  07 2  0003  0003  0003           0     0     0     0     0     0     0  0001
1                  1  76 01 22  12  44101 14  07 2  0004  0004  0001           0     0     0     0     0     0     0     0
1                  1  76 01 23  00  44101 14  07 2     0     0     0           0     0     0     0     0     0     0  0003
1                  1  76 01 23  12  44101 14  07 2  0006  0007  0007  0008  0011  0012  0013  0014  0013  0013  0012  0011
1                  1  76 01 24  00  44101 14  07 2  0011  0011
1                  1  76 01 31  12  44101 14  07 2  0008  0008  0008  0008  0008  0010  0010  0010  0010  0011  0011  0011
1                  1  76 02 01  12  44101 14  07 2  0001  0001  0001  0001  0002  0002  0003  0003  0003  0004  0003  0003
1                  1  76 02 02  00  44101 14  07 2  0004  0003  0003        0001  0002  0001  0001  0001  0002  0001     0
1                  1  76 02 02  12  44101 14  07 2     0     0     0     0     0     0     0     0     0     0     0     0
1                  1  76 02 03  00  44101 14  07 2     0     0     0        0002  0002  0002  0002  0002  0003  0001  0001
1                  1  76 02 03  12  44101 14  07 2  0002  0003  0003  0002  0003  0003  0004  0004  0004  0003  0003  0005
1                  1  76 02 04  00  44101 14  07 2  0003  0004  0005        0001     0  0001     0     0     0     0
1                  1  76 02 04  12  44101 14  07 2     0     0     0     0  0001  0001  0001     0     0  0001  0001  0001
1                  1  76 02 05  12  44101 14  07 2  0002  0002  0001  0002  0002  0002  0003  0003  0001  0001  0002  0001
1                  1  76 02 07  00  44101 14  07 2  0001  0001  0001        0003  0003  0001  0002  0002  0002  0002  0002
1                  1  76 02 07  12  44101 14  07 2  0002  0002  0003  0004  0004  0006  0005  0005  0005  0005  0005  0003
1                  1  76 02 08  12  44101 14  07 2  0003  0005  0004  0003  0004  0005  0006  0006  0004  0005  0005  0004
1                  1  76 02 09  00  44101 14  07 2  0007  0005  0005        0001  0002  0002  0002  0002  0002  0001  0003
1                  1  76 02 09  12  44101 14  07 2  0003  0003  0003  0003  0004  0004  0003  0005  0006  0005  0005  0005
1                  1  76 02 10  00  44101 14  07 2  0005  0005  0004        0004  0003  0004  0004  0003  0002  0002  0003
1                  1  76 02 10  12  44101 14  07 2  0003  0005  0003  0004  0004  0005  0003  0004  0003  0004  0002  0002
1                  1  76 02 11  00  44101 14  07 2  0003  0003  0004           0     0     0     0     0     0     0     0
1                  1  76 02 11  12  44101 14  07 2     0     0     0     0     0     0     0     0     0     0     0     0
1                  1  76 02 12  00  44101 14  07 2     0     0     0           0     0     0     0     0     0     0     0
1                  1  76 02 12  12  44101 14  07 2     0     0     0     0  0001  0001  0001  0002  0002  0001  0001  0001
1                  1  76 02 13  00  44101 14  07 2  0002  0001  0002        0002  0003  0004  0003  0004  0005  0004  0004
1                  1  76 02 13  12  44101 14  07 2  0005  0004  0003  0004  0006  0005  0005  0005  0004  0006  0006  0005
1                  1  76 02 14  00  44101 14  07 2  0006  0004  0005        0004  0004  0004  0002  0004  0002  0002  0004
1                  1  76 02 14  12  44101 14  07 2  0003  0003  0003  0003  0005  0004  0004  0004  0006  0005  0004  0007
1                  1  76 02 15  12  44101 14  07 2     0     0     0     0     0     0     0     0     0     0     0     0
1                  1  76 02 17  00  44101 14  07 2  0001  0001     0        0001  0001  0001  0001  0001  0001  0001  0001
1                  1  76 02 17  12  44101 14  07 2  0001  0001     0     0     0     0     0     0     0     0     0     0
1                  1  76 02 21  12  44101 14  07 2  0001  0002  0001  0001  0002  0001     0     0     0     0     0     0
1                  1  76 02 23  00  44101 14  07 2  0002  0003  0005        0005  0005  0006  0006  0005  0006  0005  0005
1                  1  76 02 23  12  44101 14  07 2  0006  0006  0004  0004  0006  0005  0006  0006  0005  0007  0006  0006
1                  1  76 02 25  12  44101 14  07 2  0001     0     0     0  0001     0     0     0     0     0  0001  0001
1                  1  76 03 17  00  44101 14  07 2  0003  0004  0004        0002  0001  0001     0  0001  0001  0001  0002
1                  1  76 03 17  12  44101 14  07 2  0001     0     0  0001  0001  0001  0001  0001  0001  0002  0002  0001
1                  1  76 03 18  00  44101 14  07 2  0002  0002  0003        0001     0     0  0001  0001     0     0     0
1                  1  76 03 18  12  44101 14  07 2     0     0     0     0     0     0     0     0     0     0     0     0
1                  1  76 03 19  00  44101 14  07 2     0     0     0           0     0     0     0     0     0     0     0
1                  1  76 03 19  12  44101 14  07 2  0001     0     0  0001     0  0001  0001  0001  0002  0002  0002  0002
```

Figure 7.1.2-j Raw Data Listing

The data screening subprogram provides the capability to automatically review the raw data for data anomalies. The data screening procedures are described in detail in "Screening Procedures for Ambient Air Quality Data", EPA, 450/2-78-037, July, 1978. This subprogram must be executed on each data set to insure that the data are valid or that suspicious data have been identified. Suspicious data should be removed from the sorted transaction tape before submission. The state agency should be notified and efforts made to correct and resubmit the data.

The data screening subprogram utilizes the Gap Test and the Pattern Test to screen hourly data for criteria pollutants. For the gap test, a months data is evaluated for gaps in concentrations as well as checking the number of hourly values that exceed a user supplied upper limit. This upper limit prevents an entire month or portion of a month from being too high due to incorrect scaling. The pattern test evaluates one day of data at a time and performs the following checks: (1) hourly values exceeding an empirically derived upper limit, (2) difference in adjacent values exceeding an empirically derived upper limit difference, (3) a value in a day being much different than other values in the day using a modification of the Dixon Ratio test, (4) differences and percent differences between the middle value and its adjacent values in a 3-hour interval exceeding certain prederived limits, and (5) consecutive values of four or more hours exceeding some prederived concentration limit.

Figure 7.1.2-k represents an example output from the gap test. A summary line is produced for each site-pollutant-month that is flagged. The data values printed in the summary line are in ppm for carbon monoxide and pphm for other pollutants. The audit trail as given in Figure 7.1.2-l indicates the data which were processed. To determine the problem as identified by the gap test a raw data listing is helpful.

Figure 7.1.2-m is an example of output from the pattern test. This output represents a listing of the data for the days that failed the test and the reason that the data failed. The data values printed in this report are in mg/m^3 for carbon monoxide and ug/m^3 for all other pollutants.

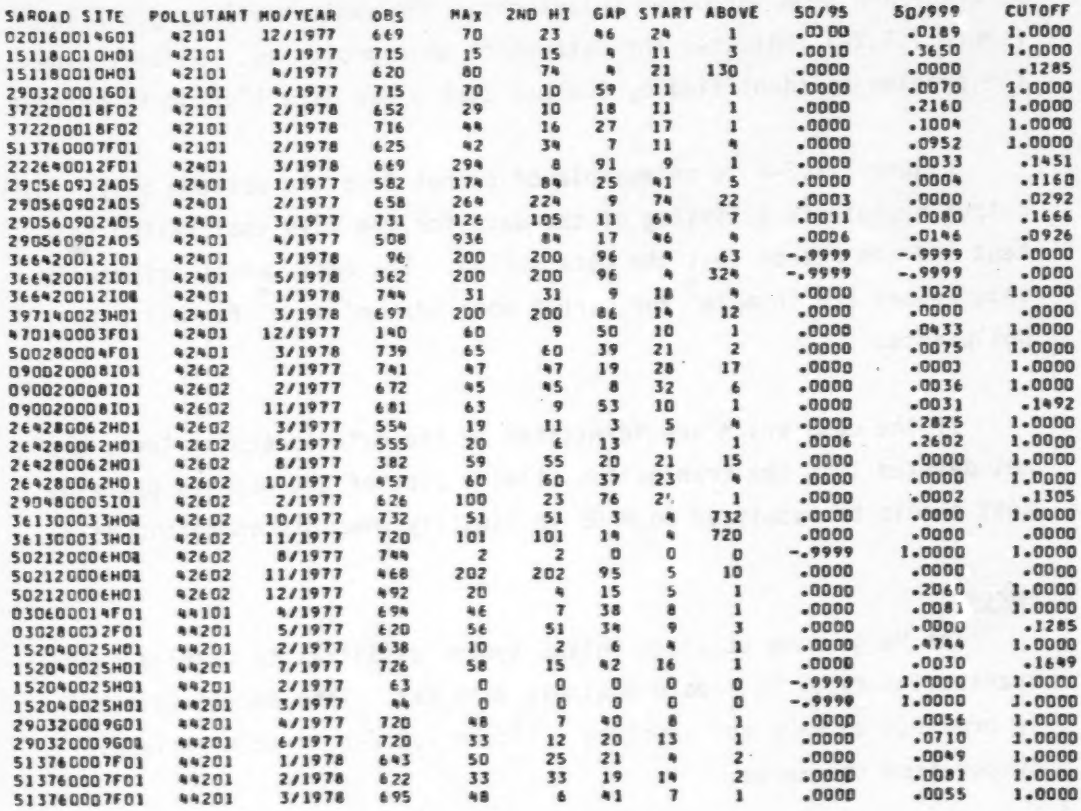
If the data which are identified by the data screening tests are not deleted from the transaction file, a copy of the gap and patterns test should be submitted to NADB to identify possible anamolous data.

Merge

The Merge step utilizes UNIVAC system utilities to combine several transaction tapes to create a single data set. This single data set is provided to NADB for updating. Figure 7.1.2-n is an example of output from the merge.

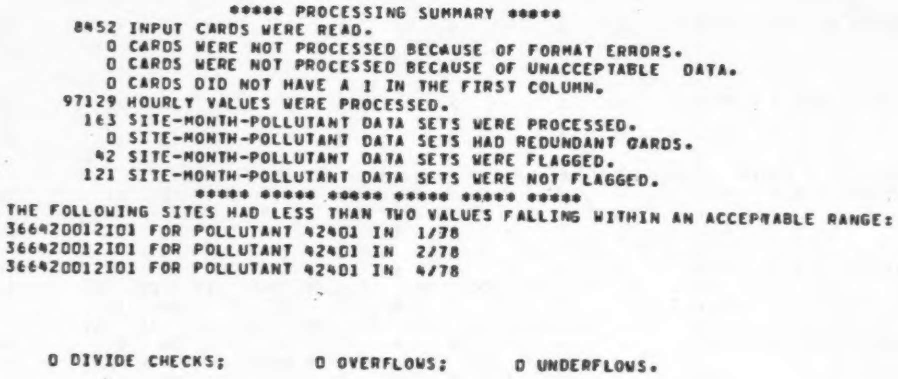
Error Resolution

The Error Resolution Step includes the correction of data which was rejected or flagged by the Edit Step, or the correction of data which was rejected in the update. The errors routinely fall into the



```
SAROAD SITE  POLLUTANT MO/YEAR   OBS     MAX  2ND HI  GAP START ABOVE    50/95      50/999    CUTOFF
020160014G01   42101   12/1977   669      70      23   46    24     1    .0300       .0189    1.0000
151180010H01   42101    1/1977   715      15      15    4    11     3    .0010       .3650    1.0000
151180010H01   42101    4/1977   620      80      74    4    21   130    .0000       .0000     .1285
290320001G01   42101    4/1977   715      70      10   59    11     1    .0000       .0070    1.0000
372200018F02   42101    2/1978   652      29      10   18    11     1    .0000       .2160    1.0000
372200018F02   42101    3/1978   716      44      16   27    17     1    .0000       .1004    1.0000
513760007F01   42101    2/1978   625      42      34    7    11     4    .0000       .0952    1.0000
222640012F01   42401    3/1978   669     294       8   91     9     1    .0000       .0033     .1451
290560912A05   42401    1/1977   582     174      84   25    41     5    .0000       .0004     .1160
290560902A05   42401    2/1977   658     264     224    9    74    22    .0003       .0000     .0292
290560902A05   42401    3/1977   731     126     105   11    64     7    .0011       .0080     .1666
290560902A05   42401    4/1977   508     936      84   17    46     4    .0006       .0146     .0926
366420012I01   42401    3/1978    96     200     200   96     4    63   -.9999      -.9999     .0000
366420012I01   42401    5/1978   362     200     200   96     4   324   -.9999      -.9999     .0000
366420012I01   42401    1/1978   744      31      31    9    18     4    .0000       .1020    1.0000
397140023H01   42401    3/1978   697     200     200   86    14    12    .0000       .0000     .0000
470140003F01   42401   12/1977   140      60       9   50    10     1    .0000       .0433    1.0000
500280004F01   42401    3/1978   739      65      60   39    21     2    .0000       .0075    1.0000
090020008I01   42602    1/1977   741      47      47   19    28    17    .0000       .0003    1.0000
090020008I01   42602    2/1977   672      45      45    8    32     6    .0000       .0036    1.0000
090020008I01   42602   11/1977   681      63       9   53    10     1    .0000       .0031     .1492
264280062H01   42602    3/1977   554      19      11    3     5     4    .0000       .2825    1.0000
264280062H01   42602    5/1977   555      20       6   13     7     1    .0006       .2602    1.0000
264280062H01   42602    8/1977   382      59      55   20    21    15    .0000       .0000    1.0000
264280062H01   42602   10/1977   457      60      60   37    23     4    .0000       .0000    1.0000
290480005I01   42602    2/1977   626     100      23   76    24     1    .0000       .0002     .1305
361300033H01   42602   10/1977   732      51      51    3     4   732    .0000       .0000    1.0000
361300033H01   42602   11/1977   720     101     101   14     4   720    .0000       .0000     .0000
502120006H01   42602    8/1977   744       2       2    0     0     0   -.9999      1.0000    1.0000
502120006H01   42602   11/1977   468     202     202   95     5    10    .0000       .0000     .0000
502120006H01   42602   12/1977   492      20       4   15     5     1    .0000       .2060    1.0000
030600014F01   44101    4/1977   694      46       7   38     8     1    .0000       .0081    1.0000
030280032F01   44201    5/1977   620      56      51   34     9     3    .0000       .0000     .1285
152040025H01   44201    2/1977   638      10       2    6     4     1    .0000       .4744    1.0000
152040025H01   44201    7/1977   726      58      15   42    16     1    .0000       .0030     .1649
152040025H01   44201    2/1977    63       0       0    0     0     0   -.9999      1.0000    1.0000
152040025H01   44201    3/1977    44       0       0    0     0     0   -.9990      1.0000    1.0000
290320009G01   44201    4/1977   720      48       7   40     8     1    .0000       .0056    1.0000
290320009G01   44201    6/1977   720      33      12   20    13     1    .0000       .0710    1.0000
513760007F01   44201    1/1978   643      50      25   21     4     2    .0000       .0049    1.0000
513760007F01   44201    2/1978   622      33      33   19    14     2    .0000       .0081    1.0000
513760007F01   44201    3/1978   695      48       6   41     7     1    .0000       .0055    1.0000
```

Figure 7.1.2-k Output From Gap Test



```
                 ***** PROCESSING SUMMARY *****
   8452 INPUT CARDS WERE READ.
      0 CARDS WERE NOT PROCESSED BECAUSE OF FORMAT ERRORS.
      0 CARDS WERE NOT PROCESSED BECAUSE OF UNACCEPTABLE  DATA.
      0 CARDS DID NOT HAVE A 1 IN THE FIRST COLUMN.
  97129 HOURLY VALUES WERE PROCESSED.
    163 SITE-MONTH-POLLUTANT DATA SETS WERE PROCESSED.
      0 SITE-MONTH-POLLUTANT DATA SETS HAD REDUNDANT CARDS.
     42 SITE-MONTH-POLLUTANT DATA SETS WERE FLAGGED.
    121 SITE-MONTH-POLLUTANT DATA SETS WERE NOT FLAGGED.
               ***** ***** ***** ***** ***** *****
THE FOLLOWING SITES HAD LESS THAN TWO VALUES FALLING WITHIN AN ACCEPTABLE RANGE:
366420012I01 FOR POLLUTANT 42401 IN  1/78
366420012I01 FOR POLLUTANT 42401 IN  2/78
366420012I01 FOR POLLUTANT 42401 IN  4/78



    0 DIVIDE CHECKS;        0 OVERFLOWS;      0 UNDERFLOWS.
```

Figure 7.1.2-1 Audit Trail for Gap Test

```
                                                    AIR DATA SCREENING SYSTEM-(ADSS)
                                                   CHECKS FOR CONTINUOUS(HOURLY) DATA

              TEST 1 - HI-VALUE, TEST 2 - HI-DIFF, TEST 3 - DIXON RATIO, TEST 4 - SPIKE, TEST 5 - HI-CONS-4-HRS

SITE CODE    POLL/MTD YYMMDD            HOURLY VALUES IN DAY FAILING ADSS CHECKS

020160014601 4210111 77 1 6   MIDN 1     2     3     4     5     6     7     8     9    10    11        TEST FAILED
                                8     9     7     4     5     3     6    11     5     6    10    17     1 2 3 4 5
                              NOON 1     2     3     4     5     6     7     8     9    10    11              X
                               17    16    16    11    33    11    10     7     6     9     5     6
020160014601 4210111 7712 7   MIDN 1     2     3     4     5     6     7     8     9    10    11        TEST FAILED
                                3     2     3     3     2     2     2     5     9     7     7     8     1 2 3 4 5
                              NOON 1     2     3     4     5     6     7     8     9    10    11        X X   X
                                8     5     3     5    80     9     9     6     7     6     7     8
SITE -  020160014601     POLLUTANT-METHOD - 42101/11      NO. DAYS SCREENED -  311
151183010H01 4210111 77 4 3   MIDN 1     2     3     4     5     6     7     8     9    10    11        TEST FAILED
                                0    23    29     0     0     0     0     0  9999    40    40    57     1 2 3 4 5
                              NOON 1     2     3     4     5     6     7     8     9    10    11        X X
                               57    57    29     6    12    12     0     0     0     6     6     6
151180010H01 4210111 77 4 6   MIDN 1     2     3     4     5     6     7     8     9    10    11        TEST FAILED
                               29    17    17    17    23    29    23    29  9999    17    29    23     1 2 3 4 5
                              NOON 1     2     3     4     5     6     7     8     9    10    11        X X
                               23    23    23    40    46    40    34    46    46    40    46    57
151180010H01 4210111 77 4 7   MIDN 1     2     3     4     5     6     7     8     9    10    11        TEST FAILED
                               23    23    23    17    17    40    63    63  9999    17    12    23     1 2 3 4 5
                              NOON 1     2     3     4     5     6     7     8     9    10    11          X
                               17    17    17    69    69    69    17    17    17    17    17    29
151180010H01 4210111 77 4 8   MIDN 1     2     3     4     5     6     7     8     9    10    11        TEST FAILED
                               17    17    17    17    17    17    17    17  9999     6     0     0     1 2 3 4 5
                              NOON 1     2     3     4     5     6     7     8     9    10    11        X X   X
                               57    57    40     6     0     6     6     0    12    23    46    23
151180010H01 4210111 77 4 9   MIDN 1     2     3     4     5     6     7     8     9    10    11        TEST FAILED
                               23    23    23    29     6    17    63    63  9999    86    23    23     1 2 3 4 5
                              NOON 1     2     3     4     5     6     7     8     9    10    11        X X
                               29    34    34    34    29    52    52    34    23    17    23    23
151180010H01 4210111 77 410   MIDN 1     2     3     4     5     6     7     8     9    10    11        TEST FAILED
                               23    40    57    29    12    12    12    17  9999    17    17    17     1 2 3 4 5
                              NOON 1     2     3     4     5     6     7     8     9    10    11        X X
                               17    23    29    29    34    40    34    34    34    29    29    29
151180010H01 4210111 77 411   MIDN 1     2     3     4     5     6     7     8     9    10    11        TEST FAILED
                               29    23    12    12    17    69    52    52  9999    29    29    23     1 2 3 4 5
                              NOON 1     2     3     4     5     6     7     8     9    10    11          X
                               34    34    34    34    29    29    34    63    46    46    40    34
151180010H01 4210111 77 412   MIDN 1     2     3     4     5     6     7     8     9    10    11        TEST FAILED
                               12    12     6     6    12    29    69    46  9999    29    23    23     1 2 3 4 5
                              NOON 1     2     3     4     5     6     7     8     9    10    11          X   X
                               23    23    34    34    40    34    40    40    34    34    34    29
```

Figure 7.1.2-m Output From Pattern Test

```
@ASORT,A
S/M2.18 RL72-8 02/08-08:03:37
CONVERT RT
RECORD LENGTH=48
SORT FIELDS=(2,26,CH,A,32,2,CH,A,28,2,CH,A,1,1,CH,D)
INPFIL BLKSIZE=3216
 OUTFIL OUTPUT=SPMR,BLKSIZE=3216,LABEL=S
END
END CONVERT
MERGE=SORT61,SORT69
CHECK=D,T,F,S
VOLUME=SMALL
CORE=25000

SPMR          REEL  1 RECORDS = 99924   BLOCKS =   1432

END OF MERGE. TOTAL RECORDS OUTPUT =        99924 10*
 08:09:41    ASCRT
 DRUM 00:00:00.138 DISC 00:00:00.000 TAPE 00:01:18.561 I/O  00:01:18.700
 CCER 00:00:06.050 CAU  00:00:29.509 MEMY 00:00:14.497-002 OK

@FIN
```

*See Figure 7.2.2-b SAROAD Merge/Update Sheet

Figure 7.1.2-n Merge Output

following categories: (1) Invalid key which was identified by editor, (2) Valid key but site or pollutant not correctly registered on the site or parameter file, (3) Valid key but incorrect data values, or (4) Invalid update action code.

The Match/Change/Delete Program (NA068) enables the Regional Offices to correct three of the four errors which have been identified above. The second error can be corrected by updating the appropriate file. The program can be utilized to correct errors on the sorted transaction tape as created by NA067 or to correct errors on the error card image file created by NA067. The program will actually execute successfully on any card image tape which has been sorted and which contains only forms 1 and 2 with only one pollutant on form 2.

For the sorted transaction tape, NA068 has the following options:

1. Delete selected records with the deleted records being optionally written to a mass storage file.
2. Change all actions codes to a single action code.
3. List selected data or all of the transaction file.

Only one of the above options may be performed with each execution of NA068.

For the error card image tape, NA068 has the following options:

1. Delete selected records or individual values with data values being optionally written to a mass storage file.

2. Change the key of selected records or change individual data values. All records may be written to the corrected card tape, or only those records that were changed may be written.

3. List selected data or all of the transaction file.

Options 1 and 2 can be executed together as long as two actions are not performed on the same record. When option 3 is executed, no other options are permitted.

The execution of NA068 creates either a corrected sorted transaction file for input to merges or creates a corrected card image tape for input to NA067.

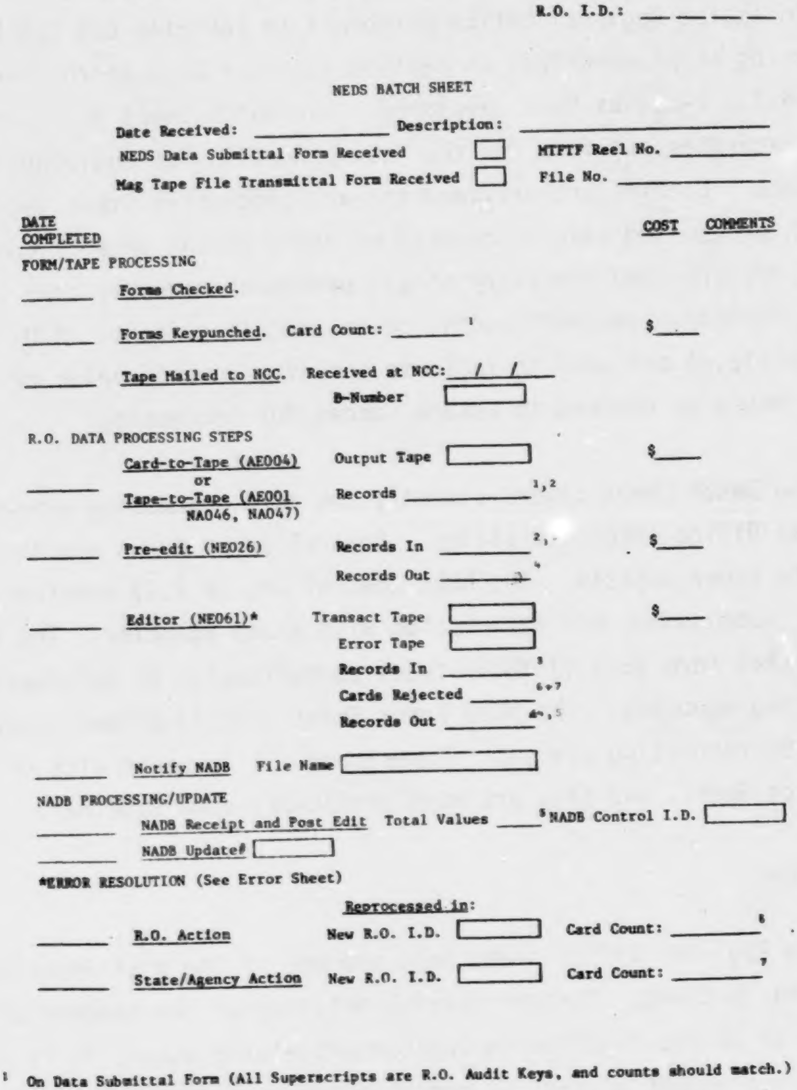
Although the correction of errors is important, the correct sorted transaction tape must not be held while errors are being resolved.

To assist Regional Office personnel in carrying out the NEDS data processing steps described in Section 7.1.1, a NEDS Batch Sheet (Figure 7.2.1-a) has been developed. The Batch Sheet is designed as a basic recordkeeping form for the R.O. processing of individual groups of NEDS data. Entries are provided for all processing steps and completion of each processing step is denoted by entry of the date of completion. Spaces are provided for entry of all pertinent magnetic tape identifiers, names, record/value/card counts, costs and other items. R.O. Audit Keys (superscripts) are used to indicate specific record, value or card counts which should be checked to assure successful processing.

The Batch Sheet covers strictly the data-processing aspects of Regional Office NEDS activities. Several other forms are available to expedite other aspects. The NEDS Control Log (6.2.1) provides an overview of submissions and interaction with state agencies. The NEDS State Transmittal Form (6.3.1) facilitates communication of information from submitting agencies. The NEDS Error Sheet (6.5.1) allows tracking of the error resolution process. These forms all interact with or complement the Batch Sheet, and they are most profitably used together.

AUDIT KEYS

The Regional Office Audit Keys are one of the most important features of the Batch Sheet. Through careful notation of the numbers of cards, records or values involved in various processing steps, it is possible to eliminate a number of serious possible errors and to be sure that all submitted data survived processing.



R.O. I.D.: __ __ __ __

NEDS BATCH SHEET

Date Received: ____________ Description: ____________________
NEDS Data Submittal Form Received ☐ MTFTF Reel No. __________
Mag Tape File Transmittal Form Received ☐ File No. ______________

DATE COMPLETED | COST | COMMENTS

FORM/TAPE PROCESSING

______ Forms Checked.

______ Forms Keypunched. Card Count: ______ ^{1} $______

______ Tape Mailed to NCC. Received at NCC: __/__/__
B-Number ☐

R.O. DATA PROCESSING STEPS

______ Card-to-Tape (AE004) or Tape-to-Tape (AE001 NA046, NA047) Output Tape ☐ $______
Records ____________ ^{1,2}

______ Pre-edit (NE026) Records In __________ ^{2,3} $______
Records Out __________ ^{4}

______ Editor (NE061)* Transact Tape ☐ $______
Error Tape ☐
Records In __________ ^{3}
Cards Rejected ________ $^{6+7}$
Records Out __________ $^{4-,5}$

______ Notify NADB File Name ☐

NADB PROCESSING/UPDATE

______ NADB Receipt and Post Edit Total Values _____ ^{5} NADB Control I.D. ☐
______ NADB Update# ☐

*ERROR RESOLUTION (See Error Sheet)

Reprocessed in:

______ R.O. Action New R.O. I.D. ☐ Card Count: __________ ^{6}

______ State/Agency Action New R.O. I.D. ☐ Card Count: __________ ^{7}

[1] On Data Submittal Form (All Superscripts are R.O. Audit Keys, and counts should match.)

Figure 7.2.1-a. NEDS Batch Sheet.

Throughout the Batch Sheet, counts which should match are noted by identical superscripts. Each superscripted count should be checked against any previous counts with the same superscript, and reasons sought if the counts are not equal. In a few cases, counts must be added or an inequality should exist, as indicated on the Batch Sheet. Specific R.O. Audit Key checks are included in the instructions below.

USING THE NEDS BATCH SHEET

The Batch Sheet is intended as a cover sheet for all information on a given NEDS submission while it is in active R.O. processing. Any forms such as State Transmittal Forms or Magnetic Tape File Transmittal Forms and all relevant computer listings should be attached and carried until processing is complete.

Initial Receipt of Submission

Upon receipt of a NEDS data submission, the header of the Batch Sheet should be filled out. The Regional Office I.D. number (see 6.2.1 for recommended form) is used as the unique identification of a batch to be processed. Date received, a short description of data involved and other details should be filled out or checked as appropriate.

Form/Tape Processing

If NEDS coding forms are received, enter dates on which form checking and keypunching are completed. Enter count of cards punched and check against the agency-reported count on the NEDS State Transmittal Form (6.3.1), if submitted (Superscript 1). A space is provided for cost of keypunching.

If magnetic tape is received and mailed to NCC (rather than transmitted), enter the date mailed. Enter the date received at NCC and NCC B-Number when this information becomes available.

R.O. Data Processing Steps

Enter the date and all other details (NCC reel numbers, record/value/card counts and costs) as each step of the Regional Office data processing is completed. Audit checks which should be performed are as follows:

Superscript 1: After card-to-tape or tape-to-tape program, check record count against card count from keypunching and card count from State Transmittal Form.

Superscript 2: After pre-edit, check pre-edit records in Figure 7.1.1-c against record count from card-to-tape or tape-to-tape program.

Superscripts 3 and 4: After editor, check records in against records in from pre-edit. Also check records out against records out from pre-edit (records out of editor should be equal to pre-edit values when no cards were rejected, and records out should be less than records out if rejects occurred.) See Figure 7.1.1-c for pre-edit records out, Figure 7.1.1-e for editor counts.

The date should be recorded when NADB is notified of completion of R.O. processing, and the file name recorded for reference in verifying update progress. If available, the NADB Control I.D. assigned should also be noted in the space provided below.

NADB Processing/Update

Upon receipt of the post-edit listing from NADB, the date and the post-edit total values count should be noted. The total values count is checked against records out of the editor. NADB Control I.D. should also be recorded if not available previously.

The NADB Update Number containing the data should be determined via the AERO-MESSAGE file and recorded. The date of successful completion of that update should be recorded when verified via the AERO-MESSAGE or NADB Code-a-Phone.

Error Resolution

For all groups of errors or other rejected data, make an entry in the ERROR RESOLUTION section of the Batch Sheet and document on the NEDS Error Sheet (6.4.1). Distinguish between errors expected to be resolved at the Regional Office level and those referred to the submitting agency for action. Enter the number of cards involved in each group as it is identified. The total of card counts for error groups should equal the editor cards rejected count if all errors were editor rejections (Superscripts 6, 7).

Enter the new R.O. I.D. and date of initiation of reprocessing once errors are resolved and reenter the processing cycle. Make an appropriate notation for all error groups which will not be reprocessed (i.e., duplicate records or others for which error resolution will not be pursued).

Concatenation

Several changes and additions must be made to the above procedures to adapt them to NEDS processing in which more than one submission from one state are concatenated onto one tape after the editor, prior to submission to NADB. It is recommended that such cases be handled parallel to the SAROAD Merge/Update Sheet procedures described in 7.2.2.

To assist Regional Office personnel in carrying out the SAROAD data processing steps described in Section 7.1.2, the SAROAD Batch Sheet and Merge/Update Sheet (Figures 7.2.2-a and 7.2.2-b) have been developed. These sheets are designed as basic recordkeeping forms for the R.O. processing of individual groups of SAROAD data. Entries are provided for all processing steps and completion of each processing step is denoted by entry of the date of completion. Spaces are provided for entry of all pertinent magnetic tape identifiers, names, record/value/card counts, costs and other items. R.O. Audit Keys (superscripts) are used to indicate specific record, value or card counts which should be checked to assure successful processing.

The Batch and Merge/Update Sheets cover strictly the data processing aspects of Regional Office SAROAD activities. Specifically, the Batch Sheet includes all steps through the editor, and the Merge/Update Sheet documents merging, submission and NADB updating for several SAROAD submissions. Several other forms are available to expedite other aspects. The SAROAD Control Log (6.2.2) provides an overview of submissions and interaction with state agencies. The SAROAD State Transmittal Form (6.3.2) facilitates communication of information from submitting agencies. The SAROAD Error Sheet (6.5.2) allows tracking of the error resolution process. These forms all interact with or complement the Batch and Merge/Update Sheets, and they are most profitably used together.

AUDIT KEYS

The Regional Office Audit Keys are one of the most important features of the Batch and Merge/Update Sheets. Through careful notation

R.O. I.D.: ___ ___ ___ ___
State Year Period Batch

SAROAD BATCH SHEET

Date Received: ____________ Description: ____________

SAROAD Data Submittal Form Received ☐ MTFTF Reel No. ____________

Mag Tape File Transmittal Form Received ☐ File No. ____________

DATE COMPLETED COST

FORM/TAPE PROCESSING

___ Forms Checked. Count ___/___/___[1] (Total/Daily/Continuous)

___ Forms Keypunched. Card Count: ________[3] $____

___ Tape Mailed to NCC.

___ Received at NCC. B-Number ☐

BATCH PROCESSING STEPS

Card-to-Tape (AE004) Output Tape ☐ Record Count ________[2,3,4] $____

___ or

Tape-to-Tape (AE001 NA046, NA047)

___ Pre-edit (NA026) Input Records ________[4,5] $____

Total Values ________[6]

___ Editor (NA067)* SORTED-TRANS ☐ Card Images Read ________[5] $____

ERROR-TRANS ☐ Values Rejected ________[8+9]

Transactions Created ____[≤6,7]

___ MRB Validation Errors: Yes ☐ No ☐

Match/Change/Delete Processing

___ ☐ Sorted-Trans Option ______

☐ Error-Trans Tape-out ☐ Values Out ______[≤7]

MERGE/UPDATE Processing (See Merge/Update Sheet)

___ Merge __ NADB ID ☐

___ NADB Update # ☐

*ERROR RESOLUTION (See Error Sheet)

Reprocessed in:

___ R.O. Action New R.O. I.D. ☐ Value Count: ________[8]

___ State/Agency Action New R.O. I.D. ☐ Value Count: ________[9]

[1,2] On Data Submittal Form (All Superscripts are R.O. Audit Keys, and counts should match.)

Figure 7.2.2-a. SAROAD Batch Sheet

SAROAD MERGE/UPDATE SHEET

DATE COMPLETE **COMMENTS**

Merge Program

R.O. I.D.	Input Tapes	Records In
☐	☐	________ [7]
☐	☐	________ [7]
☐	☐	________ [7]
☐	☐	________ [7]
☐	☐	________ [7]

Total Records In ________ [10]
(manual total)

Records Out ________ [10]

Output Tape ☐ Cost ________

________ Notify NADB File Name ☐

________ NADB Receipt and Post Edit Total Values ________ [10] NADB Control I.D. ☐

________ NADB Update# ☐ Rejects Tape* ☐

Rejects Count ________ [11+12]

* ERROR RESOLUTION (See Error Sheet)

Reprocessed in:

________ R.O. Action New R.O. I.D. ☐ Card Count: ________ [11]

________ State/Agency Action New R.O. I.D. ☐ Card Count: ________ [12]

Figure 7.2.2-b. SAROAD Merge/Update Sheet

---

[7] Sorted records, from individual Batch Sheets. (All Superscripts are R.O. Audit Keys, counts should match.)

of the numbers of cards, records or values involved in various processing steps, it is possible to eliminate a number of serious possible errors and to be sure that all submitted data survived processing.

Throughout the Batch and Merge/Update Sheets, counts which should match are noted by identical superscripts. Each superscripted count should be checked against any previous counts with the same superscript, and reasons sought if the counts are not equal. In a few cases, counts must be added or an inequality should exist, as indicated with some superscripts. Specific R.O. Audit Key checks are included in the instructions below.

USING THE SAROAD BATCH SHEET

The Batch Sheet is intended as a cover sheet for all information on a given SAROAD submission while it is in active R.O. processing. Any forms such as State Transmittal Forms or Magnetic Tape File Transmittal Forms and all relevant computer listings should be attached and carried until processing is complete.

Initial Receipt of Submission

Upon receipt of a SAROAD data submission, the header of the Batch Sheet should be filled out. The Regional Office I.D. number (see 6.2.2 for recommended form) is used as the unique identification of a batch to be processed. Date received, a short description of data involved and other details should be filled out or checked as appropriate.

Form/Tape Processing

If SAROAD coding forms are received, enter dates on which form checking and keypunching are completed. Enter counts of forms submitted and cards keypunched and check the former against the agency-reported count on the SAROAD State Transmittal Form (6.3.2), if submitted (Superscript 1). A space is provided for cost of keypunching.

If a magnetic tape is received and mailed to NCC (rather than transmitted), enter the date mailed. Enter the date received at NCC and NCC B-Number when this information becomes available.

Batch Processing Steps

Enter the date and all other details (NCC reel numbers, record/value/card counts and costs) as each step of Regional Office data processing for this batch is completed. Audit checks which should be performed during batch processing are as follows:

Superscripts 2 and 3: After card-to-tape or tape-to-tape program, check record count against card count from keypunching and card count from State Transmittal Form.

Superscript 4: After pre-edit, check pre-edit input records (Figure 7.1.2-c) against record count from card-to-tape or tape-to-tape program.

Superscripts 5 and 6: After editor, check card images read against input records from pre-edit. Compute transactions created by summing the individual totals for each action code. Also check transactions created against total values from pre-edit (transactions created by editor should be equal to pre-edit total values when no cards are rejected, and transactions created should be less than total values if rejects occurred). See Figure 7.1.2-d for pre-edit total records and Figure 7.1.2-g for editor audit trail.

After execution of MRB validation report, the printout should be reviewed and a check made on Batch Sheet to indicate whether possible errors were identified.

Match/Change/Delete Processing

Basic recordkeeping for data correction utilizing NA068 is performed on the SAROAD Batch Sheet. The appropriate blanks should be completed to indicate the data processed, processing performed, and the necessary audit trail. The values out of NA068 must always be less than or equal to transactions created. If input is the error tape, the output is not utilized as input to a merge but will probably be input to NA067.

Merge/Update Processing

Basic recordkeeping for the merge and succeeding processing steps is performed on the Merge/Update Sheet, as described below. Dates of merge and NADB update completion are to be noted on the Batch Sheet as well, to provide verification of these items for each batch. The two-digit merge identifier (Merge__) or other identifier used for merges must be recorded to allow cross-reference between Batch and Merge/Update Sheets. The NADB Control I.D. and Update Number for the merged group containing each batch should be recorded to allow checking of NADB update status of that batch's data via the NADB AERO-MESSAGE file or Code-a-Phone.

Error Resolution

For all groups of errors or other data rejected in batch processing steps, make an entry in the ERROR RESOLUTION section of the Batch Sheet and document on the SAROAD Error Sheet (6.4.2). Distinguish between errors expected to be resolved at the Regional Office level and those referred to the submitting agency for action. Enter the number of values involved in each group as it is identified. The value counts for error groups should equal the editor values rejected if all errors were editor rejections (Superscripts 8, 9). See Figure 7.1.2-g for editor counts.

Enter the new R.O. I.D. and date of initiation of reprocessing once errors are resolved and reenter the processing cycle. Make an appropriate notation for all error groups which will not be reprocessed (i.e., duplicate records or others for which error resolution will not be pursued).

USING THE MERGE/UPDATE SHEET

The Merge/Update Sheet allows recordkeeping for processing and follow-up steps from the merge of several data sets to verification of NADB updating of the merged group of data. If an agency submission is submitted to NADB without merging with other submissions, the items to be recorded for the steps from "Notify NADB" to "NADB Update" may be transferred to the Batch Sheet, or a Merge/Update Sheet attached to the Batch Sheet and the irrelevant details under "Merge Program" omitted.

Each merged group of data should be given a unique identifier: a two-digit identifier in the form "Merge__" is recommended, to be assigned sequentially. This or some other identifier should be entered in the upper right corner of the Merge/Update Sheet and on the Batch Sheet for all data included in the merge.

This section provides for recording of a number of pertinent items about the individual batches going into a merged submission to NADB. The Regional Office I.D., NCC reel number, and number of records from each batch going into the merge should be noted. These record counts are not generated by the merge, but are rather the record counts from the edit program for each batch, and should be identical to counts with Superscript 7 on the respective Batch Sheets. The individual edit record counts should be totalled manually under "Total Records In."

After running the merge, the resulting records out (see Figure 7.1.2-n) should be noted and compared to the manual total (Superscript 10). Output tape reel number and cost of the run should be noted.

NADB Processing

When NADB is notified of availability of a set of data which has completed Regional Office processing, the date and file name (and NADB Control I.D., if available) should be recorded.

The date of receipt of the NADB-generated post-edit should be noted, and the post-edit total values recorded and checked against records in and out of the merge program (Superscript 10). See Figure 7.1.2-n for merge counts, Figure 7.3.2-c for post-edit counts.

Upon verification of successful NADB updating (via the AERO-MESSAGE file or Code-a-Phone), the date and NADB Update number should be recorded. If a rejects tape was generated, its NCC reel number and rejects count should be noted.

Error Resolution

For all groups of errors or other data rejected during merge and NADB updating, make an entry in the ERROR RESOLUTION section of the Merge/Update Sheet and document on the SAROAD Error Sheet (6.4.2). Distinguish between errors expected to be resolved at the Regional

Office level and those referred to the submitting agency for action. Enter the number of cards involved in each group as it is identified. The total of card counts for error groups should equal the update rejects count if all errors were update rejections (Superscripts 11, 12).

Enter the new R.O. I.D. and date of initiation of reprocessing once errors are resolved and reenter the processing cycle. Make an appropriate notation for all error groups which will not be reprocessed (i.e., duplicate records or others for which error resolution will not be pursued).

RECEIPT OF DATA

All emissions data received by the NADB from Regional Offices or any special studies will be logged in before processing begins. Before the data can be logged in and processing begun, a cover letter must be received with the following minimum information given:

1. Name of agency submitting data.
2. Date of submission.
3. Approximate number of cards or records included.
4. Type of data (whether semiannual report data or supplemental data) and the period covered.
5. If a magnetic tape contains the data, a magnetic tape file transmittal form must be included for each file.

As the data are logged in, a control ID, which will be used for all future references, is assigned. This control ID is assigned by using NED as first three characters, the state or region abbreviation as the next two characters, and the Julian date as the next three characters. If several data sets or tape files are received on a given day, the files are uniquely identified by letters of the alphabet.

PRE-UPDATE DATA PROCESSING AND DATA SCREENING

Upon receipt of each data set, NADB runs the POST-EDIT INVENTORY OF DATA RECEIVED report. This report is similar to the PRE-EDIT report. It is used to verify that the data received from the Regional Office corresponds to the set of data which the Regional Office indicates was being submitted. The POST-EDIT program separates incoming point and area source data into separate output files for update processing. Any discrepancies are brought to the attention of the Regional Office. If no problems are indicated by the POST-EDIT report, NADB proceeds with the UPDATE of information received from the Regional Office.

The next step in the update process normally involves the preliminary screening of the data to insure that updating the new data will not severely damage the quality of data currently on the NEDS files. The data screening process usually involves:

1. Comparison of POST-EDIT output reports with existing NEDS plant name and plant emissions reports to verify that no facilities emitting over 100 tons per year will be improperly deleted.
2. A "trial update" of the new data to verify that there has been no improper assignment of plant ID numbers, no improper reduction in the point count at major emitting facilities, and no other major errors that will result in improper calculation of emissions.

If any major problems are identified in the data screening process, they will be brought to the attention of the Regional Office. The data will be held out of the update process until the problems are resolved. If no problems are identified or only minor problems that can be easily corrected by NADB are found, the update process will continue.

Control ID's which pass the data screening procedure are then prepared for update. Area source transactions are processed by the NEDS area source update program, NE077A. Point source transactions are processed by the NEDS point source update program NE075A. Prior to input to NE075A point source control ID's are first concatenated into a single file. This file is then merged with rejected transactions saved from the last point source update and the merged file is sorted in ascending key (State/County/Plant/Point/SCC) order. The sorted file of all point source transactions is then ready for update.

POINT SOURCE UPDATE

NE075A is the update program to apply Point Source update transactions to the NEDS Point Source User File. The program reads the edited and sorted point source transaction file (NEDS-PTRANS) builds transaction sets and applies them to the NEDS Point Source User File (NADB*NEDS-USER) creating an updated NEDS Point Source User File (NADB*NEDS-USER-T) on tape.

During the updating process, NE075A accesses the NADB*NEDS-EM-FACT, NADB*AERO-CTYCNTY, NADB*NEDS-SICNMS, and NADB*NEDS-SICIPP files for reference and data validation purposes. The Point Source calculation subprogram (NEA75A) is called by NE075A to perform any necessary (re) calculation of emissions contained in the Point Source User File. The transactions are applied to the User file if valid, and are rejected if invalid. Invalid add transactions are saved and written to the output reject hold file (NEDS-RTRAN) to be applied in the next update cycle. Invalid non-add transactions are merely written on the output report.

NE075A produces four output reports in a simultaneous manner via a temporary file (NE075A-TEMP) which is sorted and printed after all updating has been completed.

These reports are: POINT SOURCE UPDATE STATISTICAL REPORT
POINT SOURCE UPDATE VALIDATION REPORT
POINT SOURCE UPDATE REJECTION REPORT
POINT SOURCE UPDATE SUMMARY REPORT

Figure 7.3.1-a illustrates the overall flow of this process. Following the execution of NE075A, the NEDS-USER-T file is copied from tape to disk to create a new NEDS-USER file for access by NEDS report programs.

The following sections discuss the reports output by the NEDS point source update process.

EMISSIONS CALCULATION VALIDATION REPORT

The NEDS Emission Calculation Validation Report indicates where possible errors in emission calculations may result because critical data items are missing or there is a contradiction between the emission estimation method code and the SCC emission factor file. The validation messages produced only point out possible errors. No data are rejected by the emission calculation validation process. The validation report may be optionally examined by the agency that submitted the data to identify any errors that are serious enough to require correction.

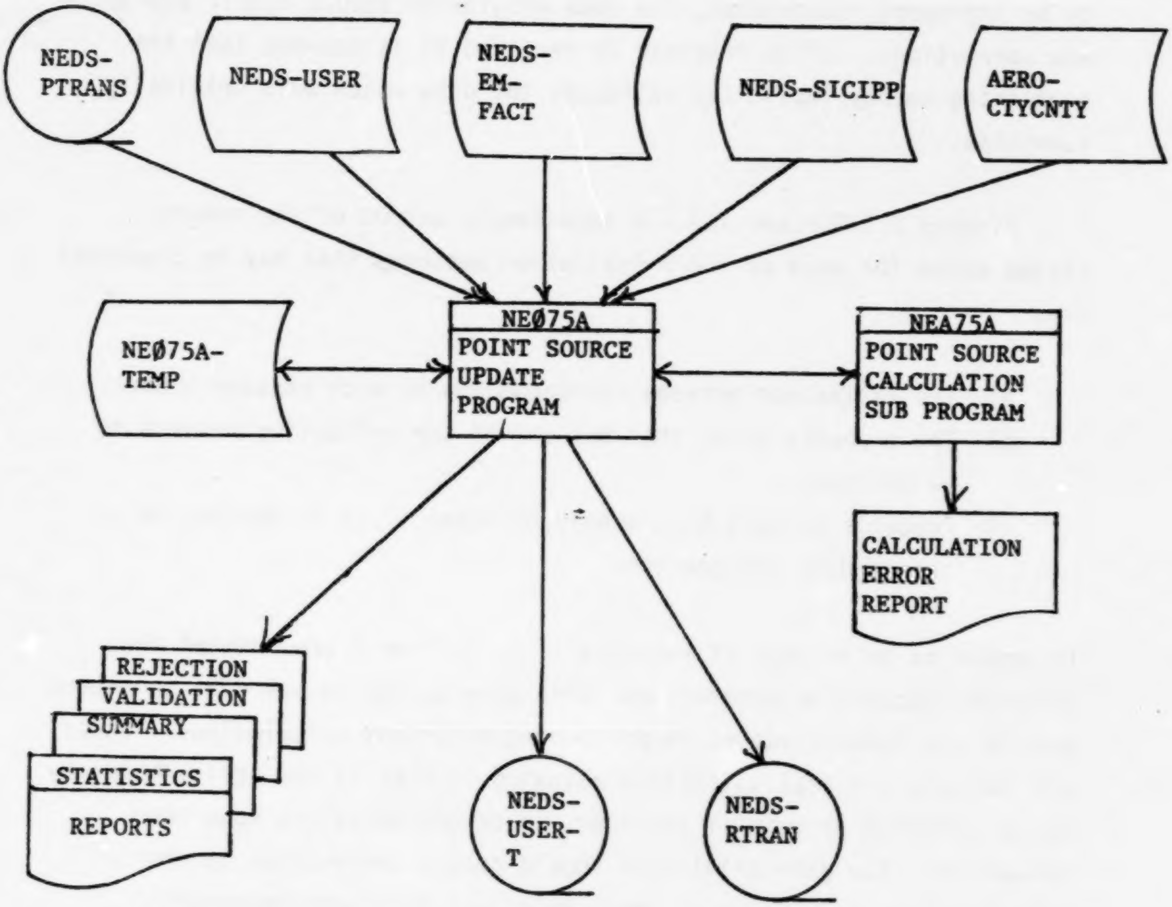

NEDS-PTRANS
NEDS-USER
NEDS-EM-FACT
NEDS-SICIPP
AERO-CTYCNTY
NE075A-TEMP
NE075A
POINT SOURCE UPDATE PROGRAM
NEA75A
POINT SOURCE CALCULATION SUB PROGRAM
CALCULATION ERROR REPORT
REJECTION
VALIDATION
SUMMARY
STATISTICS
REPORTS
NEDS-USER-T
NEDS-RTRAN

Figure 7.3.1-a. NEDS Point Source Update Process

If the validation messages report true errors which cause emissions to be improperly calculated, the data originator should submit appropriate corrections. If no response is received it is assumed that the submitting agency implicitly validates the data which were originally submitted.

Figures 7.3.1-b and 7.3.1-c show sample output of the report. Listed below for each of the 9 validation messages that may be processed are:

a) The validation message corresponding to each message number.
b) The probable error that has caused the validation message to be printed.
c) Probable actions that should be taken if it is desired to submit data corrections.

It should be noted that if messages 1, 4, 5, 8 or 9 are printed the emission calculation program has taken some action to override submitted data or use default values in performing emissions calculations. These are the most critical validation messages in that if the action taken by the calculation program is improper, incorrect emissions have been calculated. The data originator should submit corrections to the NEDS-USER file data in cases where emissions have been improperly calculated. Messages 2, 3, 6 and 7 are only informative messages to indicate that some necessary data item is missing or that user-supplied hand calculated emission estimates significantly disagree with computer calculated emissions. If available, missing data should be submitted or data corrections made.

```
                         N A T I O N A L   E M I S S I O N   D A T A   S Y S T E M
                                            NEDS UPDATE SYSTEM
                                       CALCULATION VALIDATION REPORT                                   PAGE: 26-0001
                                                                                              DATE OF UPDATE: 12/11/78
     IDENTIFIER
ST CNTY PLNT PT SCC      PARTICULATE              SOX                 NOX                  HC                  CO
                   <------------------> <------------------> <------------------> <------------------> <------------------>

          THE FOLLOWING VALIDATION MESSAGES ARE WRITTEN TO INDICATE POSSIBLE ERROR CONDITIONS IN THE DATA ON THE
          NEDS-USER FILE WHICH PREVENT PROPER CALCULATION OF EMISSIONS FOR INDIVIDUAL EMISSION POINTS AND SCCS.
          THE MESSAGES ARE NUMBERED 1 THROUGH 9. THE MESSAGE NUMBERS ARE USED IN THE BODY OF THE VALIDATION REPORT
          TO IDENTIFY THE POSSIBLE ERROR CONDITIONS

          A MESSAGE RELATES TO A SPECIFIC POLLUTANT FOR AN SCC OR POINT. THE NUMBER OF THE ERROR MESSAGE WILL
          APPEAR IN THE COLUMN OF THE POLLUTANT FOR WHICH THE ERROR EXISTS. IF THE SAME MESSAGE NUMBER APPEARS
          FOR MORE THAN ONE POLLUTANT FOR AN SCC, IT MEANS THAT THE SAME ERROR APPLIES TO THE CALCULATED EMISSIONS
          FOR EACH POLLUTANT. IF THE ERROR MESSAGE NUMBER APPEARS FOR ONLY ONE POLLUTANT, IT MEANS THAT THE ERROR
          INVOLVES ONLY THE CALCULATED EMISSIONS FOR THAT POLLUTANT. IF THERE IS MORE THAN ONE ERROR FOR A POLLUTANT
          WITHIN AN SCC, MULTIPLE ERROR MESSAGE NUMBERS APPEAR TO IDENTIFY EACH ERROR.

          IF ERROR MESSAGE NUMBER 5 IS USED, IT WILL BE FOLLOWED IN PARENTHESIS BY THE DEFAULT VALUE USED. IT WILL
          APPEAR AS 5(9.99)---.

          REFER TO "AEROS VOLUME II, SECTION 7, CHAPTER 3, SUBJECT 1, "VALIDATION OF EMISSIONS DATA"", FOR
          INSTRUCTIONS ON CORRECTION OF THE ERRORS INDICATED BY THE CALCULATION VALIDATION MESSAGES.

              MESSAGE
              NUMBER
                                  CALCULATION VALIDATION MESSAGES

                 1        ESTIMATION METHOD CODE 0 NOT VALID FOR NON-ZERO EMISSION FACTOR

                 2        OPERATION RATE IS BLANK FOR ESTIMATION METHOD BLANK OR 3 - CANNOT CALCULATE EMISSIONS

                 3        EMISSION FACTOR IS BLANK FOR ESTIMATION METHOD BLANK OR 3 - CANNOT CALCULATE EMISSIONS

                 4        ASH CONTENT IS BLANK, DEFAULT VALUE OF 10 USED TO CALCULATE EMISSIONS

                 5        SULPHUR CONTENT IS BLANK, DEFAULT VALUE USED TO CALCULATE EMISSIONS

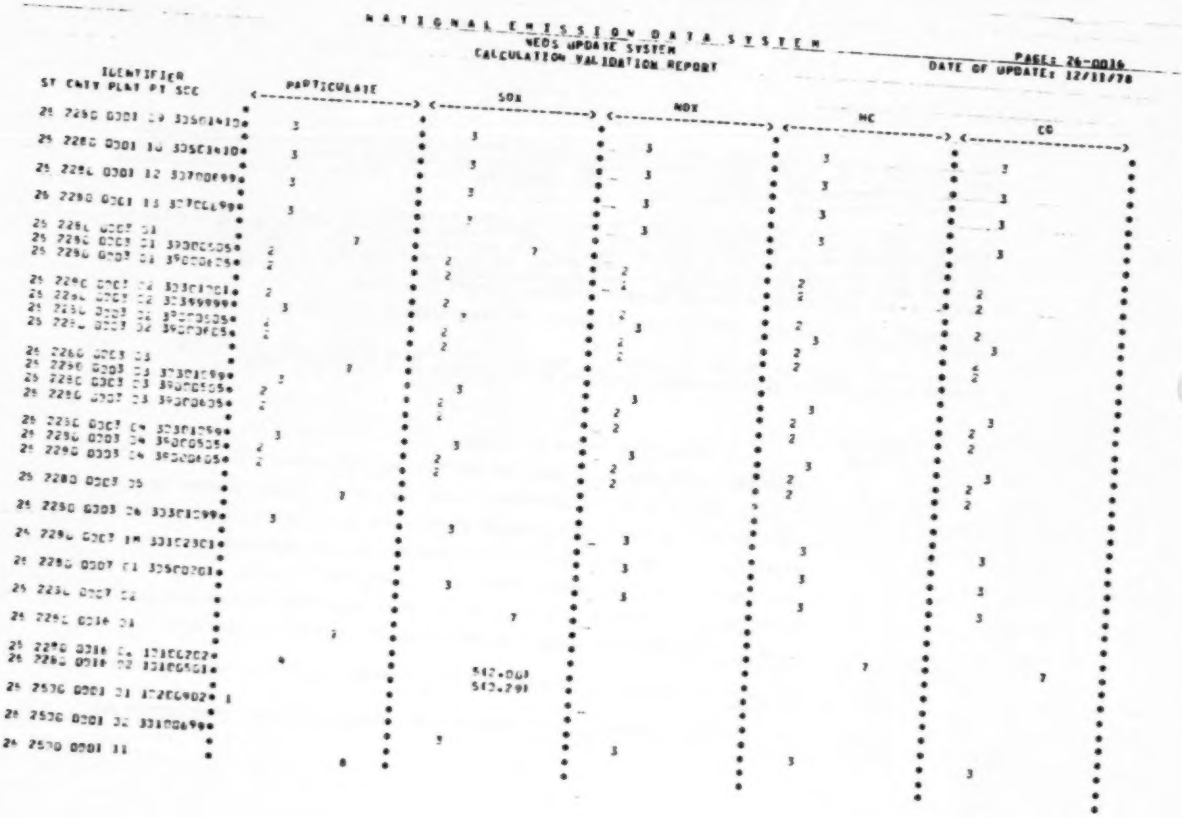
                 6        ESTIMATION METHOD CODES 1, 2, 4, OR 5 ARE NOT VALID WHEN ESTIMATED EMISSIONS IS BLANK

                 7        ESTIMATED POINT EMISSIONS DIFFER FROM CALCULATED SCC EMISSIONS BY MORE THAN
                          A FACTOR OF 3

                 8        THE SUM OF CALCULATED SCC EMISSIONS IS ZERO, ESTIMATED POINT EMISSIONS IS NON-ZERO
                          NON-BLANK

                 9        SOME ESTIMATION METHODS FOR A POINT EQUAL 6 OR 7 HOWEVER, ALL ESTIMATION METHODS NOT
                          6 OR 7
```

Figure 7.3.1-b Calculation Validation Messages



```
                         N A T I O N A L   E M I S S I O N   D A T A   S Y S T E M
                                        NEDS UPDATE SYSTEM
                                  CALCULATION VALIDATION REPORT                         PAGE: 26-0016
        IDENTIFIER                                                                  DATE OF UPDATE: 12/11/78
  ST CNTY PLNT PT SCC
                    <---PARTICULATE---> <-------SOX-------> <-------NOX-------> <-------HC--------> <-------CO-------->
```

Figure 7.3.1-c NEDS Calculation Validation Report

The user should refer to Section 3, Chapter 1, Subject 2, if there are questions concerning the proper use of NEDS emission estimation method codes. Generally, emission estimation codes of 1, 2, 4 or 5 cause user-supplied hand calculated emission estimates to be used. Estimation method code 3 causes emissions to be computer-calculated, and estimation method codes 0, 6 and 7 cause emissions to be calculated as zero. Users interested in reviewing the detailed algorithms used for point source emission calculations should contact the NADB Systems Development Section for a copy of program documentation for NEA75A, the NEDS point source calculation subprogram.

1a)1 ESTIMATION METHOD CODE 0 NOT VALID FOR NON-ZERO EMISSION FACTOR.

1b) An estimation method code of 0 has occurred in conjunction with a non-zero emission factor for a pollutant. The emission calculations have been performed as if the estimation code were 3 instead of 0.

1c) The estimation method and the emission factor should be checked for correctness and necessary changes made to the proper file. The estimation method is found in the NEDS-USER file. The emission factor is located in the NEDS-EM-FACT file. Normally, estimation method is incorrect and should be changed to 3 or some other emission estimation method code. Another possibility is that SCC is incorrect and should be corrected.

2a)2 OPERATING RATE IS BLANK FOR ESTIMATION METHOD BLANK OR 3 - CANNOT CALCULATE EMISSIONS.

2b) A blank operating rate has occurred in conjunction with an estimation method of blank or 3. Estimation method blank and 3 indicate the emissions are to be computer calculated but the calculations cannot be performed with a blank operating rate.

2c) The estimation method and the operating rate should be checked for correctness and the necessary changes made to the NEDS-USER file. Estimation method should be changed to some other code and emission estimates coded if possible, or a value should be entered for operating rate, if available.

3a)3 EMISSION FACTOR IS BLANK FOR ESTIMATION METHOD BLANK OR 3 - CANNOT CALCULATE EMISSIONS

3b) A blank emission factor has occurred in conjunction with an estimation method of blank or 3. Estimation methods blank and 3 indicate the emissions are to be computer calculated but the calculations cannot be performed with a blank emission factor.

3c) The estimation method and the emission factor should be checked to determine which is incorrect. Normally, the estimation method, found in NEDS-USER, is incorrect and should be changed to a method code other than 3 or blank, and corresponding emission estimates entered, if necessary. Another possibility is that SCC is incorrect. If so, the incorrect SCC should be deleted and the correct SCC, with a non-blank emission factor in NEDS-EM-FACT file, should be added.

4a)4 ASH CONTENT IS BLANK, DEFAULT VALUE OF 10 USED TO CALCULATE EMISSIONS.

4b) The ash flag indicates that ash content should be used in the calculation but the ash content is blank.

4c) The data originator should be aware that a default value of 10 has been used in the calculation in place of the ash content. The ash content should be checked to discover if some value other than 10 is correct and make the necessary change to the NEDS-USER file.

5a)5 SULFUR CONTENT IS BLANK, DEFAULT VALUE USED TO CALCULATE EMISSIONS.

5b) The sulfur flag indicates that sulfur content should be used in the calculation but the sulfur content is blank.

5c) The data originator should be aware that a default value has been selected from a table. The selection is made on the basis of the SCC value. The sulfur content should be checked to discover whether some other value is available to replace the default value, and if so make the necessary change to the NEDS-USER file.

6a)6 ESTIMATION METHOD CODES 1, 2, 4, OR 5 ARE NOT VALID WHEN ESTIMATED EMISSIONS IS BLANK.

6b) An estimation method code of 1, 2, 4, or 5 has occurred in conjunction with a blank estimated emission for a pollutant.

6c) The data originator should check the estimation method and the estimated emissions to discover which is incorrect and made the necessary change to the NEDS-USER file.

7a)7 ESTIMATED POINT EMISSIONS DIFFER FROM CALCULATED SCC EMISSIONS BY MORE THAN A FACTOR OF 3.

7b) The ratio of estimated point emissions to calculated SCC emissions is either greater than 3 or less than .333.

7c) The data originator should check all elements of the calculation (emission factor, operating rate, ash or sulfur content, and control efficiency) and the estimated emissions to discover if any are incorrect. If one or more fields are incorrect changes should be made to the NEDS-USER file.

8a)8 THE SUM OF CALCULATED SCC EMISSIONS IS ZERO, ESTIMATED POINT EMISSIONS IS NON-ZERO NON-BLANK.

8b) This message indicates that for a point with multiple SCC's and an estimation method code of 1, 2, 4 or 5 the calculation subroutine reaches a point when the calculated emissions must all be zero, yet a non-zero value is coded in the emissions estimate field.

8c) To correct this problem, it should first be determined whether the estimated emissions should in fact be zero. If this is the case this change should be made. If the estimated emissions are in fact greater than zero the operating rates for SCC's and emission factor values in the SCC Emission Factor File must be checked. If at least one SCC has an operating rate, it must be verified that at least one of the SCC's with an operating rate has a non-zero emission factor. If not then an SCC is incorrect or additional operating rates must be entered so that SCC's to which emissions apply do have operating rates. If no SCC has an operating rate and no data or operating rates are available, then an SCC is incorrect, since this message is generated when all SCC's have zero emission factors, indicating that there are no emissions for the pollutant for the point.

9a)9 SOME ESTIMATION METHODS FOR A POINT EQUAL 6 OR 7 HOWEVER, ALL ESTIMATION METHODS NOT 6 OR 7.

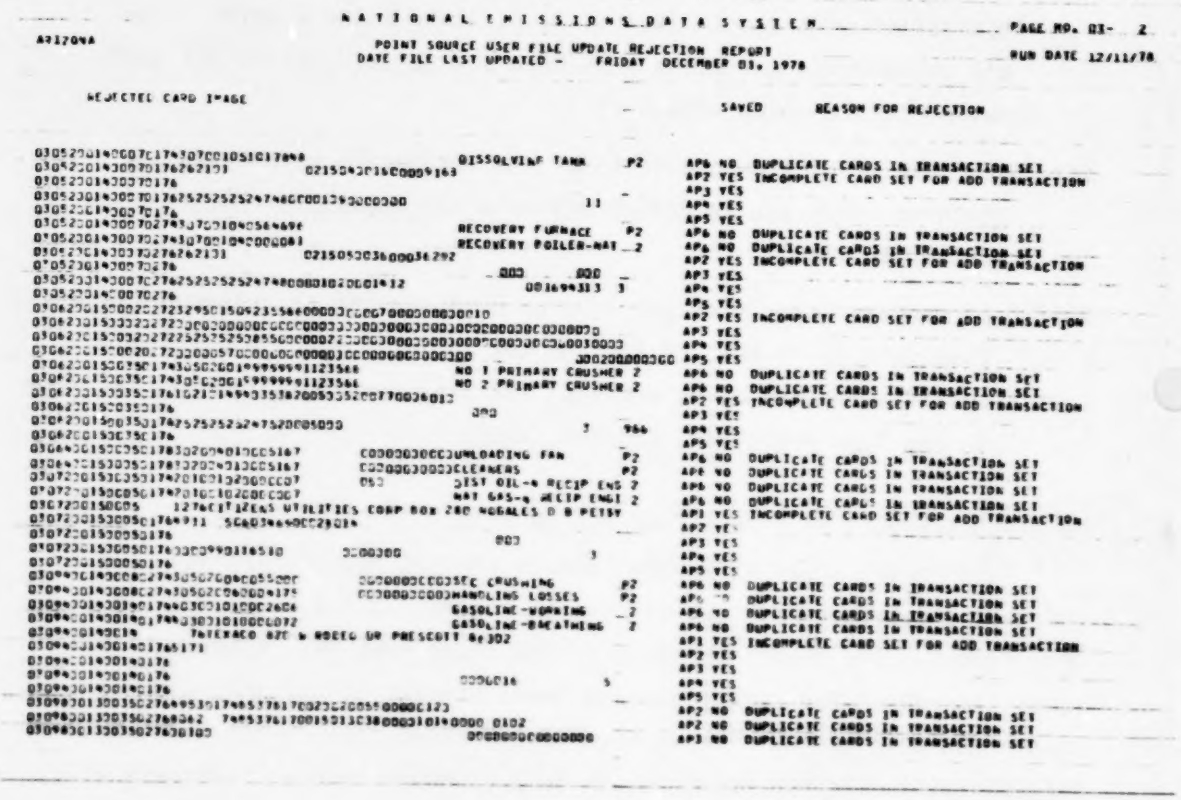
9b) An estimation method of 6 or 7 has occurred in conjunction with estimation methods of blank 1, 2, 3, 4, or 5 for a point. For all pollutants, emissions have been set to zero, as if all estimation method codes were 6 or 7.

9c) The data originator should check the estimation methods to discover which are incorrect and make the necessary change to the NEDS-USER file.

NOTE: If program error messages 1, 3 or 8 appear for cases where emission factors in NEDS-EM-FACT do not in fact meet the conditions specified by the error message, the problem should be reported to the Data Processing Section, NADB.

POINT SOURCE USER FILE UPDATE REJECTION REPORT

This report shows NEDS point source records which could not be updated because of some type of error. Figure 7.3.1-d is an example of this report. The report prints the card image that was rejected, indicates the reason for rejection, and tells whether or not the rejected record has been saved. The records saved are written to the NEDS-RTRAN (REJECT-HOLD) file for possible use in subsequent updates. Records will be saved if the reason for rejection is "Incomplete Card Set for Add Transactions." If a record with an add transaction is rejected, this will prevent updating of associated records for the same plant or point since a needed record will be missing having been rejected by the updated



```
                                   N A T I O N A L   E M I S S I O N S   D A T A   S Y S T E M                 PAGE NO. 03-   2
ARIZONA
                                   POINT SOURCE USER FILE UPDATE REJECTION  REPORT                              RUN DATE 12/11/78
                                   DATE FILE LAST UPDATED -    FRIDAY  DECEMBER 01, 1978

      REJECTED CARD IMAGE                                                                  SAVED      REASON FOR REJECTION

03052301400070174307001051017848                     DISSOLVING TANK    P2     AP6 NO  DUPLICATE CARDS IN TRANSACTION SET
03052301430070176262131        021504301600009163                              AP2 YES INCOMPLETE CARD SET FOR ADD TRANSACTION
03052301430070176                                                              AP3 YES
0305230143007017625252525247460001390000000                       11           AP4 YES
03052301430070176                                                              AP5 YES
0305230143007027430703104056469E                     RECOVERY FURNACE   P2     AP6 NO  DUPLICATE CARDS IN TRANSACTION SET
03052301430070274307001040000081                     RECOVERY BOILER-NAT 2     AP6 NO  DUPLICATE CARDS IN TRANSACTION SET
03052301430070276262131        021505303600036292                              AP2 YES INCOMPLETE CARD SET FOR ADD TRANSACTION
03052301430070276                                     000       000            AP3 YES
030523014300702762525252524740000010200014 12               001694313  3       AP4 YES
03052301430070276                                                              AP5 YES
0306230150002027232950150923556000003000670000000030010                        AP2 YES INCOMPLETE CARD SET FOR ADD TRANSACTION
0306230153332327230002000000000000000333000300003000300000000300000020         AP3 YES
030623015003202722252525252855600000072300030000300000000000300000030000       AP4 YES
0306230150002027230000570000000000003000000000000000300          000200000360  AP5 YES
03062301500350174305020014999999112356 6             NO 1 PRIMARY CRUSHER 2    AP6 NO  DUPLICATE CARDS IN TRANSACTION SET
030623015003501743050200149999991123566              NO 2 PRIMARY CRUSHER 2    AP6 NO  DUPLICATE CARDS IN TRANSACTION SET
030623015003501761621314993353820053352007700026013                            AP2 YES INCOMPLETE CARD SET FOR ADD TRANSACTION
03062301500350176                                 000                          AP3 YES
030623015003501762525252524752000500 0                            3     966    AP4 YES
03062301500350176                                                              AP5 YES
03064301500350178302094019005167        0000303000000UNLOADING FAN      P2     AP6 NO  DUPLICATE CARDS IN TRANSACTION SET
03064301500350178030209031000 5167      00000030000 CLEANERS            P2     AP6 NO  DUPLICATE CARDS IN TRANSACTION SET
03072301500050174201001020090000 7      053          DIST OIL-4 RECIP ENG 2    AP6 NO  DUPLICATE CARDS IN TRANSACTION SET
03072301500050174201001020000007                     NAT GAS-4 RECIP ENGI 2    AP6 NO  DUPLICATE CARDS IN TRANSACTION SET
0307230150005     1276CITIZENS UTILITIES CORP BOX 280 NOGALES D B PETSY        AP1 YES INCOMPLETE CARD SET FOR ADD TRANSACTION
030723015000501764911  5040344400029014                                        AP2 YES
03072301500050176                                   000                        AP3 YES
0307230150005017600300990116510        3000300                  3              AP4 YES
03072301500050176                                                              AP5 YES
03094301430008027430502000000055000     000000000003SEC CRUSHING        P2     AP6 NO  DUPLICATE CARDS IN TRANSACTION SET
0309430143000802743050200620004175      000000020000HANDLING LOSSES     P2     AP6 NO  DUPLICATE CARDS IN TRANSACTION SET
030943014301400174403031010002604                    GASOLINE-WORKING    2     AP6 NO  DUPLICATE CARDS IN TRANSACTION SET
0309430143014001744030310100006072                   GASOLINE-BREATHING  2     AP6 NO  DUPLICATE CARDS IN TRANSACTION SET
03094301430014      76TEXACO 02C W ROEEG UP PRESCOTT AZ 302                    AP1 YES INCOMPLETE CARD SET FOR ADD TRANSACTION
030943014301401765171                                                          AP2 YES
03094301430140176                                                              AP3 YES
03094301430140176                                    0006016       5           AP4 YES
03094301430140176                                                              AP5 YES
03090301300350276495301749577617002302005500000123                             AP2 NO  DUPLICATE CARDS IN TRANSACTION SET
030903013303502760362  7495376170015013038000031014000 0102                    AP2 NO  DUPLICATE CARDS IN TRANSACTION SET
0309030133035027630103                              0000000000000000           AP3 NO  DUPLICATE CARDS IN TRANSACTION SET
```

Figure 7.3.1-d. Point Source User File Update Rejection Report

process. It is necessary to resubmit only the record that was rejected due to an error. This corrected record will be processed with the records held in the rejects file to perform a proper update.

Each of the rejected records appearing in the rejection report that is not saved should be corrected and resubmitted for a subsequent update. Below is given a list of the rejection messages that may appear in the rejection report and the probable corrective action that should be taken for each.

Update Rejection Error Messages

1. ATTEMPT TO ADD PLANT WHICH ALREADY EXISTS
   An attempt was made to add a new NEDS-USER record with a key (STATE/COUNTY/PLANT) which already exists on that file.
   Action: Check the assignment of the plant ID. If incorrect, a new plant ID must be assigned. If plant ID is correct, the existing plant with the same ID must be deleted. Resubmit the rejected data with an additional DP1 card to delete the existing plant. Be sure the plant being deleted is the same as the plant to be added back in its place.
2. ATTEMPT TO ADD POINT WHICH ALREADY EXISTS
   An attempt was made to add a new NEDS-USER record with a key (STATE/COUNTY/PLANT/POINT) which already exists on that file.
   Action: Check the assignment of point ID. If incorrect, assign new point ID and resubmit. If correct, resubmit with DP2 card to delete existing point.

3. ATTEMPT TO ADD SCC WHICH ALREADY EXISTS

   An attempt was made to add a new NEDS-USER record with a key (STATE/COUNTY/PLANT/POINT/SCC) which already exists on that file.

   Action: Check the SCC. If incorrect, assign proper SCC and resubmit. If correct, resubmit with DP6 card to delete existing SCC.

4. ATTEMPT TO CHANGE PLANT WHICH DOES NOT EXIST

   An attempt was made to change a NEDS-USER record for which the change key (STATE/COUNTY/PLANT) does not match an existing NEDS-USER record key.

   Action: Check assignment of plant ID. Resubmit with correct plant ID.

5. ATTEMPT TO CHANGE POINT WHICH DOES NOT EXIST

   An attempt was made to change a NEDS-USER record for which the change key (STATE/COUNTY/PLANT/POINT) does not match an existing NEDS-USER record key.

   Action: Resubmit with correct plant/point ID.

6. ATTEMPT TO CHANGE SCC WHICH DOES NOT EXIST

   An attempt was made to change a NEDS-USER record for which the change key (STATE/COUNTY/PLANT/POINT/SCC) does not match an existing NEDS-USER record key.

   Action: Resubmit with correct plant/point/SCC ID.

7. ATTEMPT TO DELETE PLANT WHICH DOES NOT EXIST

   An attempt was made to delete a NEDS-USER record and the transaction key (STATE/COUNTY/PLANT) does not match an existing NEDS-USER record key.

   Action: Resubmit with correct plant ID.

8. ATTEMPT TO DELETE POINT WHICH DOES NOT EXIST

   An attempt was made to delete a NEDS-USER record and the transaction key (STATE/COUNTY/PLANT/POINT) does not match an existing NEDS-USER record key.

   Action: Resubmit with correct plant/point ID.

9. ATTEMPT TO DELETE SCC WHICH DOES NOT EXIST

   An attempt was made to delete NEDS-USER record and the transaction key (STATE/COUNTY/PLANT/POINT/SCC) does not match an existing NEDS-USER record key.

   Action: Resubmit with correct plant/point/SCC ID.

10. ATTEMPT TO ADD POINT TO NON-EXISTANT PLANT

    An attempt was made to add a point record to the NEDS-USER file for which no plant key (STATE/COUNTY/PLANT) exists.

    Action: Resubmit point transactions with required plant and SCC add cards to add the point to the NEDS-USER file.

11. ATTEMPT TO ADD SCC TO NON-EXISTANT PLANT/POINT

    An attempt was made to add an SCC record to the NEDS-USER file for which no plant/point key (STATE/COUNTY/PLANT/POINT) exists.

    Action: Resubmit the SCC transaction(s) with required plant and point transactions to add the plant/point/SCC to the NEDS-USER file.

12. INCOMPLETE CARD SET FOR ADD TRANSACTIONS

    The add transaction set does not contain the required cards for adding a NEDS-USER record.

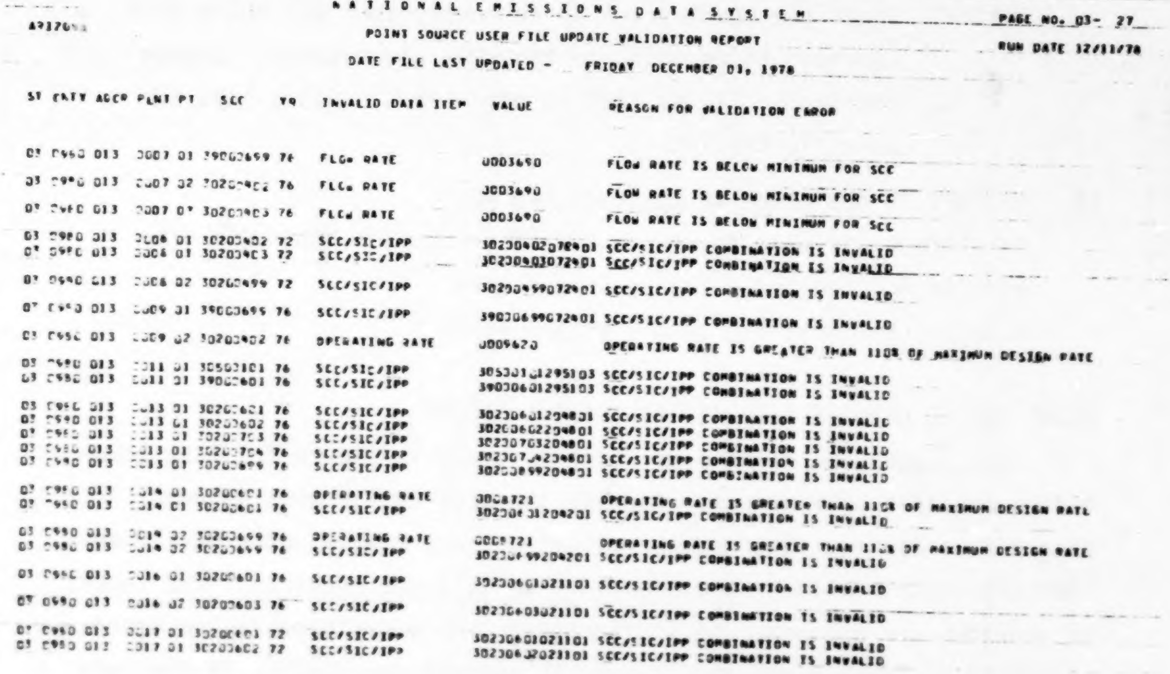
    Action: Submit the required add transaction cards to complete the set. The partial set is saved for the reject hold transaction file and will be used in the next update to attempt to add the record. When the required transactions are submitted to complete the set, the record will be added to the NEDS-USER file.

Cards Rejected	Action
For an add transaction card 1 rejected, cards 2-6 (or 7) written to rejects file.	Submit correct card 1
For an add transaction, any of cards 2-5 rejected, remaining cards (1-6, 2-6, 1-7 or 2-7) written to rejects file.	Submit corrections for whichever of cards 2-5 were rejected and not written to rejects file
For an add transaction, card 6 rejected, cards 1-5 or 2-5 written to rejects file.	Submit correct card 6
For an add transaction, card 6 rejected, no records written to rejects file	Submit correct card 6
For an add transaction card 7 rejected, no records written to reject file.	Submit correct card 7

13. DUPLICATE CARDS IN TRANSACTION SET

The transaction card set contains duplicate transactions. The transactions are not previously rejected transactions and control information (STATE/COUNTY/PLANT/POINT/SCC/ACTION/CARD#) is duplicate.

Action: Resubmit only one of the duplicate transactions for the next update.



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                    N A T I O N A L   E M I S S I O N S   D A T A   S Y S T E M                              PAGE NO. 03-  27
A317[illegible]                 POINT SOURCE USER FILE UPDATE VALIDATION REPORT                                    RUN DATE 12/11/78
                         DATE FILE LAST UPDATED -   FRIDAY  DECEMBER 01, 1978

ST CNTY AQCR PLNT PT   SCC     YR   INVALID DATA ITEM   VALUE          REASON FOR VALIDATION ERROR


03 0990 013  0007 01 39000699 76   FLOW RATE          0003690        FLOW RATE IS BELOW MINIMUM FOR SCC

03 0990 013  0007 02 30200402 76   FLOW RATE          0003690        FLOW RATE IS BELOW MINIMUM FOR SCC

03 0990 013  0007 03 30200403 76   FLOW RATE          0003690        FLOW RATE IS BELOW MINIMUM FOR SCC

03 0990 013  0008 01 30200402 72   SCC/SIC/IPP        30200402078401 SCC/SIC/IPP COMBINATION IS INVALID
03 0990 013  0008 01 30200403 72   SCC/SIC/IPP        30200403072401 SCC/SIC/IPP COMBINATION IS INVALID

03 0990 013  0008 02 30200499 72   SCC/SIC/IPP        30200499072401 SCC/SIC/IPP COMBINATION IS INVALID

03 0990 013  0009 01 39000695 76   SCC/SIC/IPP        39000699072401 SCC/SIC/IPP COMBINATION IS INVALID

03 0990 013  0009 02 30200402 76   OPERATING RATE     0009620        OPERATING RATE IS GREATER THAN 110% OF MAXIMUM DESIGN RATE

03 0990 013  0011 01 30500101 76   SCC/SIC/IPP        30500101295103 SCC/SIC/IPP COMBINATION IS INVALID
03 0990 013  0011 01 39000601 76   SCC/SIC/IPP        39000601295103 SCC/SIC/IPP COMBINATION IS INVALID

03 0990 013  0013 01 30200601 76   SCC/SIC/IPP        30200601204801 SCC/SIC/IPP COMBINATION IS INVALID
03 0990 013  0013 01 30200602 76   SCC/SIC/IPP        30200602204801 SCC/SIC/IPP COMBINATION IS INVALID
03 0990 013  0013 01 30200703 76   SCC/SIC/IPP        30200703204801 SCC/SIC/IPP COMBINATION IS INVALID
03 0990 013  0013 01 30200704 76   SCC/SIC/IPP        30200704204801 SCC/SIC/IPP COMBINATION IS INVALID
03 0990 013  0013 01 30200699 76   SCC/SIC/IPP        30200899204801 SCC/SIC/IPP COMBINATION IS INVALID

03 0990 013  0014 01 30200601 76   OPERATING RATE     0008721        OPERATING RATE IS GREATER THAN 110% OF MAXIMUM DESIGN RATE
03 0990 013  0014 01 30200601 76   SCC/SIC/IPP        30200601204201 SCC/SIC/IPP COMBINATION IS INVALID

03 0990 013  0019 02 30200699 76   OPERATING RATE     0008721        OPERATING RATE IS GREATER THAN 110% OF MAXIMUM DESIGN RATE
03 0990 013  0019 02 30200699 76   SCC/SIC/IPP        30200699204201 SCC/SIC/IPP COMBINATION IS INVALID

03 0990 013  0016 01 30200601 76   SCC/SIC/IPP        30200601021101 SCC/SIC/IPP COMBINATION IS INVALID

03 0990 013  0016 02 30200603 76   SCC/SIC/IPP        30200603021101 SCC/SIC/IPP COMBINATION IS INVALID

03 0990 013  0017 01 30200601 72   SCC/SIC/IPP        30200601021101 SCC/SIC/IPP COMBINATION IS INVALID
03 0990 013  0017 01 30200602 72   SCC/SIC/IPP        30200602021101 SCC/SIC/IPP COMBINATION IS INVALID
```

Figure 7.3.1-e. Point Source User File Update Validation Report

14. ATTEMPT TO ADD EXCESSIVE SCCS TO PLANT/POINT

A maximum of ten (10) SCC's are allowed per plant/point. An attempt was made to add an SCC to a plant/point to exceed the maximum allowable number of SCC's per plant/point.

Action: Check the plant/point ID to verify that all SCC's were intended to be added to the same plant/point. Change plant/point ID so that no more than 10 SCC's have the same plant/point ID.

15. ATTEMPT TO ADD BLANK OR ZERO SCC RECORD

An attempt was made to add an SCC record to the NEDS-USER file with an SCC code of all zeroes or blanks.

Action: Resubmit the card 6 with a valid SCC.

POINT SOURCE USER FILE UPDATE VALIDATION REPORT

This report, an example of which is shown in Figure 7.3.1-e, identifies possible data errors. As with the NEDS Editor warning edit diagnostics listing, the update validation report only notes data items that are questionable. No corrections to data are required. The report is provided for optional use in identifying data deficiencies or inconsistencies. Corrections may be made to improve the quality of the data.

The update validation report prints the questionable data item(s), the data item value, the reason for the validation message, the associated key (State/County/AQCR/Plant/Point/SCC) and year of record. Corrections may be made, if appropriate, by submitting change transactions to change incorrect data values. The validation messages and an explanation of each is given below.

Update Validation Messages

1. SCC/SIC/IPP COMBINATION IS INVALID
   For the PLANT/POINT/SCC record indicated, the SCC/SIC/IPP codes combination were not found on the NADB*NEDS-SICIPP file. Refer to the NEDS SCC and Emission Factor Listing for proper SCC/SIC combinations. Refer to AEROS Volume V, Section 3, Chapter 2 for proper SIC/IPP combinations. In the majority of cases, this validation message indicates an invalid SCC/SIC combination. Because of the limited importance of the IPP code only a few validation checks are employed for it.
2. FLOW RATE EXCEEDS MAXIMUM FOR SCC
   The Flow Rate of the PLANT/POINT/SCC record indicated is greater than the allowable maximum for the SCC.
3. FLOW RATE IS BELOW MINIMUM FOR SCC
   The Flow Rate of the PLANT/POINT/SCC record indicated is below the allowable minimum for the SCC. Messages 2 and 3 indicate presence of a questionable stack gas flow rate based on given SCC, stack diameter and good engineering practice design criteria for stacks. Flow rate, stack diameter, or SCC may be in error. For atypical sources, flow rate may be correct as shown.
4. MAX DESIGN RATE * HEAT CONTENT > BOILER DESIGN CAPACITY + 20%
   The PLANT/POINT/SCC record indicated contains data that when computed, the Maximum Design Rate field multiplied by the Heat Content field is greater than the result of the Boiler Design Capacity field added to the result of the Boiler Design Capacity field multiplied by ".2". This indicates that the printed values

shown for boiler capacity and maximum design rate (printed as BOILER CAPACITY/MAX DESIGN RATE) are inconsistent with each other. Either boiler capacity, maximum design rate, or heat content is incorrect and should be corrected by submitting a change transaction for a subsequent update.

5. OPERATING RATE IS GREATER THAN 110% OF MAXIMUM DESIGN RATE
   For the PLANT/POINT/SCC record indicated, the OPERATING RATE is greater than the maximum design rate (which is computed by 1.1 times the product of HOURS-PER-DAY, DAYS-PER-WEEK, and WEEKS-PER-YEAR, or a constant of 8760 if one or more of these items are not available, times HOURLY-MAXIMUM-DESIGN RATE. If this message is printed, the operating rate printed is inconsistent with the hourly design rate. Either operating rate or hourly design rate may be incorrect and should be changed through submission of an appropriate change transaction.

POINT SOURCE USER FILE UPDATE SUMMARY REPORT

This report shows a summary of all add, delete and special change transactions performed during a point source user file update. The report shows state/county/plant/point/SCC key fields, year of record, the update action performed, and plant name. Figure 7.3.1-f is an example of this report. Whenever a plant, point, or SCC record is added or deleted this action will be noted on the report. In addition, two special change actions will be shown. The message FACILITY OPENED is printed if an emission estimation method code was changed from a 6 to any other valid code, indicating that a facility previously under construction has become operational. The message FACILITY CLOSED is printed if an emission estimation method code was changed to a 7, indicating that a point has ceased operation.

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                              N A T I O N A L   E M I S S I O N S   D A T A   S Y S T E M                  PAGE NO. 26- 62
MISSOURI                               POINT SOURCE USER FILE UPDATE SUMMARY    REPORT                      RUN DATE 12/11/78
                                     DATE FILE LAST UPDATED -    FRIDAY  DECEMBER 01, 1978

ST   CNTY   PLNT   PT     SCC      YR    ACTION PERFORMED      PLANT NAME

25   1020   0010   01               73    POINT DELETED         PRATT & LAMBERT INC 945 BURLINGTON
                   01   30101401    74    SCC   DELETED         PRATT & LAMBERT INC 945 BURLINGTON

                   02               73    POINT DELETED         PRATT & LAMBERT INC 945 BURLINGTON
                   02   30101401    74    SCC   DELETED         PRATT & LAMBERT INC 945 BURLINGTON

25   1020   0010                    76    PLANT ADDED           PRATT & LAMBERT INC 945 BURLINGTON

                   01               76    POINT ADDED           PRATT & LAMBERT INC 945 BURLINGTON
                   01   30101401    76    SCC   ADDED           PRATT & LAMBERT INC 945 BURLINGTON

                   02               76    POINT ADDED           PRATT & LAMBERT INC 945 BURLINGTON
                   02   30101401    76    SCC   ADDED           PRATT & LAMBERT INC 945 BURLINGTON

25   1020   0011                    73    PLANT DELETED         ALTON BOX BOARD CO 110 E 10 AVENUE

                   01               73    POINT DELETED         ALTON BOX BOARD CO 110 E 10 AVENUE
                   01   40500101    73    SCC   DELETED         ALTON BOX BOARD CO 110 E 10 AVENUE

25   1020   0011                    77    PLANT ADDED           ALTON BOX BOARD CO 110 E 10 AVENUE

                   01               77    POINT ADDED           ALTON BOX BOARD CO 110 E 10 AVENUE
                   01   40500101    77    SCC   ADDED           ALTON BOX BOARD CO 110 E 10 AVENUE

25   1020   0012                    73    PLANT DELETED         COOK PAINT & VARNISH BX 389 KANSAS CTY

                   01               73    POINT DELETED         COOK PAINT & VARNISH BX 389 KANSAS CTY
                   01   30101401    74    SCC   DELETED         COOK PAINT & VARNISH BX 389 KANSAS CTY
                   01   39036699    73    SCC   DELETED         COOK PAINT & VARNISH BX 389 KANSAS CTY

                   02               73    POINT DELETED         COOK PAINT & VARNISH BX 389 KANSAS CTY
                   02   10200502    74    SCC   DELETED         COOK PAINT & VARNISH BX 389 KANSAS CTY
                   02   10200602    74    SCC   DELETED         COOK PAINT & VARNISH BX 389 KANSAS CTY

25   1020   0012                    78    PLANT ADDED           COOK PAINT & VARNISH BX 389 KANSAS CTY

                   01               73    POINT ADDED           COOK PAINT & VARNISH BX 389 KANSAS CTY
                   01   30101401    74    SCC   ADDED           COOK PAINT & VARNISH BX 389 KANSAS CTY
                   01   39003699    73    SCC   ADDED           COOK PAINT & VARNISH BX 389 KANSAS CTY

                   02               73    POINT ADDED           COOK PAINT & VARNISH BX 389 KANSAS CTY
```

Figure 7.3.1-f. Point Source User File
Update Summary Report

The principal purpose of the update summary report is for tracking of changes to the record keys present on the NEDS-USER file. Thus, whenever a record is added or deleted, this is identified. Simple changes to existing NEDS-USER records are not shown, since no change in NEDS-USER keys results from these update actions. The update summary report is used by NADB as part of its auditing procedure for NEDS user file updates. State and local agencies and EPA Regional Offices may also wish to review the report to verify that intended update actions did occur and to maintain a record of actions taken to update the NEDS user file. The report provides a record of all keys present on the NEDS user file and actions taken during each update.

POINT SOURCE USER FILE UPDATE STATISTICS REPORT

This report provides summary statistics for each state processed in a NEDS-USER update and a grand total summarizing all actions performed. Figure 7.3.1-g is a report example for the entire NEDS-USER file. Reports in the same format are produced for each state.

This report is used by NADB as part of the audit trail for NEDS-USER updates. The report shows the total number of input transactions (PTRAN records which are new transactions and REJECT-HOLD records which were saved from a previous update), and the number of transactions successfully applied according to type of action code (add, change or delete). Also listed are the number of transactions not applied (written to reject-hold file and rejection errors). Those records written to the reject-hold file are saved for processing in subsequent updates. Reject-hold file records include a date when they were originally written to

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                         NATIONAL EMISSIONS DATA SYSTEM                         PAGE NO.      1

                   POINT SOURCE USER FILE UPDATE STATISTICS REPORT                RUN DATE 10/21/78
                   DATE FILE LAST UPDATED -    FRIDAY      JUNE 16, 1978

TOTALS FOR      THE  NATION

     INPUT TRANSACTIONS

        PTRAN                                  47,727
        REJECT-HOLD                                 0
        TOTAL TRANSACTIONS READ                47,727

     TRANSACTIONS APPLIED

        ADDITIONS                              22,247
        CHANGES                                20,597
        DELETIONS                               1,744

     TRANSACTIONS NOT APPLIED

        WRITTEN TO REJECT HOLD FILE               431
        REJECTION ERRORS                        2,738
        REJECT HOLD RECORDS DROPPED                 0
     OUTPUT REJECT HOLD TRANSACTIONS              431
     INPUT POINT SOURCE USER RECORDS          197,510
        USER RECORDS DELETED                    2,933
        USER RECORDS ADDED                      4,553
     OUTPUT POINT SOURCE USER RECORDS         199,160
```

Figure 7.3.1-g. Point Source User File
Update Statistics Report

the file. Reject-hold file records that are one year old are dropped from the reject-hold file and a count of any records dropped is shown. Finally, the total number of records written to the new reject-hold file is shown.

To this point, all record counts in the update statistics report refer to input transactions, where each transaction corresponds to one 80 column card. Finally, the report tabulates the number of NEDS-USER records input, deleted, and added, and gives a count of the total number of output NEDS-USER records. There is one NEDS-USER record for each SCC present on the NEDS-USER file.

NEDS AREA SOURCE USER FILE UPDATE

Area source records are updated to the NEDS-USER-AR file by program NE077A. The area source update program updates both NEDS area source user file and NEDS area source emission factor file records. Area source emissions are calculated in the process. The program outputs only statistical summary reports, similar to the point source user file update statistics report, which tabulates the number of input records, the number accepted for update, the number rejected, and the number of new user and emission factor records output. If transactions are rejected, the rejected transaction is printed along with the reason for rejection. Below are listed the possible rejection messages that can occur. Rejected transactions should be corrected and processed in a subsequent update.

User Transaction Errors

1. "USER TRANSACTIONS NOT EDITED" CARD-IMAGE

   The action code of the user transaction is not 1-change, 2-add, or 3-delete. This indicates to the update program that these transactions have not been edited. This transaction is rejected and the job is terminated after appropriate error message is displayed.

2. "USER TRANSACTIONS NOT AREA SOURCE" CARD-IMAGE

   The system code of the user transaction is not A for Area Source Data. This transaction is rejected and the job is terminated after the appropriate error message is displayed.

3. "USER TRANS CARD NOT 1 - 7" CARD-IMAGE

   The card code of the user transaction is not inclusive from 1 to 7. The error count is incremented and the program continues processing.

4. "DUPLICATE DELETE TRANSACTIONS REJECTED" CARD-IMAGE

   Duplicate delete transactions are rejected since more than one delete transaction cannot be applied. The error count is incremented and the program continues processing.

5. "CHANGE TRANS REJECTED - FOLLOWS DELETE" CARD-IMAGE

   Change transactions that follow delete transactions are rejected, since they cannot possibly be applied after the delete has been applied. The error count is incremented and the program continues processing.

6. "DUPLICATE ADD TRANS - REJECTING FIRST SET" CARD-IMAGE
"DUPLICATE ADD TRANS - REJECTING SECOND SET" CARD-IMAGE

The keys for this add transaction are not unique. This means that there has been a duplicate card 1-5 for the preceding set of add transactions. The update program will reject and display the original set of add transactions as well as any set of add transactions with the same key that follows the original set. The error count is incremented for every transaction rejected and the program continues processing.

Emission Factor Transaction Errors

1. "TRANSACTION CODE NOT 1 2 or 3" CARD-IMAGE

The transaction code of an emission factor transaction must be 1-change, 2-add, or 3-delete. This transaction is rejected and the error count is incremented. The program continues processing.

2. "NATL RECORD DELETION OR ADDITION NOT VALID" CARD-IMAGE

The deletion or addition of the national emission factor record is not permissible. This transaction is rejected and the error count is incremented. The program continues processing.

3. "STATE CODE NOT 01 - 55" or NATL KEY NOT = 000001" CARD-IMAGE

The state code in this transaction is not 01 through 55. The state code must be 00 for the national record or 01 through 55 for the state records. The transaction is rejected and the error count is incremented. The program continues processing.

4. "COUNTY CODE NOT NUMERIC" CARD-IMAGE

The county code of this transaction must be numeric. This transaction is rejected and the error count is incremented. The program continues processing.

5. "DUPLICATE DELETE TRANSACTIONS NOT ALLOWED" CARD-IMAGE

Duplicate delete transactions are rejected since more than one delete transaction cannot be applied. The error count is incremented and the program continues processing.

6. "DUPLICATE ADD TRANSACTIONS NOT ALLOWED" CARD-IMAGE

Any duplicate add emission factor transaction will be rejected, since only one add transaction can be applied. The error count is incremented and the program continues processing.

7. "SOURCE CATEGORY NOT 01 - 84" CARD-IMAGE

The source category of a change transaction must be inclusively between 01 and 84. This transaction is rejected and the error count is incremented. The program continues processing.

8. "CHANGE TRANS REJECTED FOLLOWS DELETE" CARD-IMAGE

Change transactions that follow delete transactions are rejected, since they cannot possibly be applied after the delete has been applied. The error count is incremented and the program continues processing.

9. "ALL EMISSION FACTORS BLANK" CARD-IMAGE

At least one emission factor on a change transaction must be presented. This transaction is rejected and the error count is incremented. The program continues processing.

10. "EMISSION FACTOR INVALID" CARD-IMAGE

The emission factor of a change transaction must be numeric. This transaction is rejected and the error count is incremented. The program continues processing.

11. "TRANS REJECTED - RECORD DOES NOT EXIST" CARD-IMAGE

The deletion or modification of a record cannot be performed if the record does not exist. The relevant transactions are rejected and the error count is incremented. The program continues processing.

12. "TRANS REJECTED - RECORD ALREADY EXISTS" CARD-IMAGE

The addition of a record cannot be performed, if a record with the same key already exists. The relevant transactions are rejected and the error count is incremented. The program continues processing.

13. "STATE RECORD DELETION OR ADDITION NOT VALID" CARD-IMAGE

The deletion or addition of a state emission factor record is not permissible. This transaction is rejected and the error count is incremented. The program continues processing.

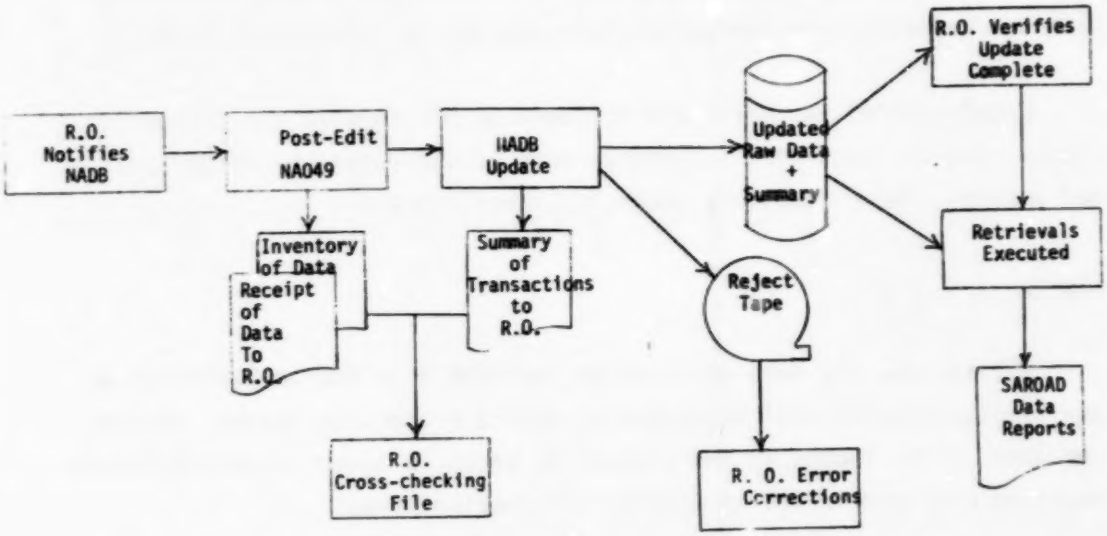
Update procedures by the Data Processing Section normally begin when Regional Office personnel supply information identifying a data set which was produced by NAA067 and which has been processed through the Merge step. The update procedure may start with the pre-edit step when data are received from nonroutine data sources in SAROAD card format.

Update procedures which are followed by DPS involve the following steps: log-in, post-edit inventory, data acknowledgement, merge-split, and update. These steps are shown in Figure 7.3.2-a

Log-in

All air quality data received by the NADB from Regional Offices or any special studies will be logged in before processing begins. Before the data can be logged in and processing begun, a cover letter should be received with the following minimum information given:

1. Name of agency submitting data.
2. Date of submission.
3. Approximate number of cards or records included.
4. Type of data (whether quarterly report data or supplemental data) and the period covered.
5. If a magnetic tape contains the data, a magnetic tape file transmittal form must be included for each file.



R.O. Notifies NADB
Post-Edit NA049
NADB Update
Updated Raw Data + Summary
R.O. Verifies Update Complete
Retrievals Executed
SAROAD Data Reports
Inventory of Data
Receipt of Data To R.O.
Summary of Transactions to R.O.
R.O. Cross-checking File
Reject Tape
R. O. Error Corrections

Figure 7.3.2-a NADB Update Processing

Figure 7.3.2-b shows an example SAROAD transmittal form.

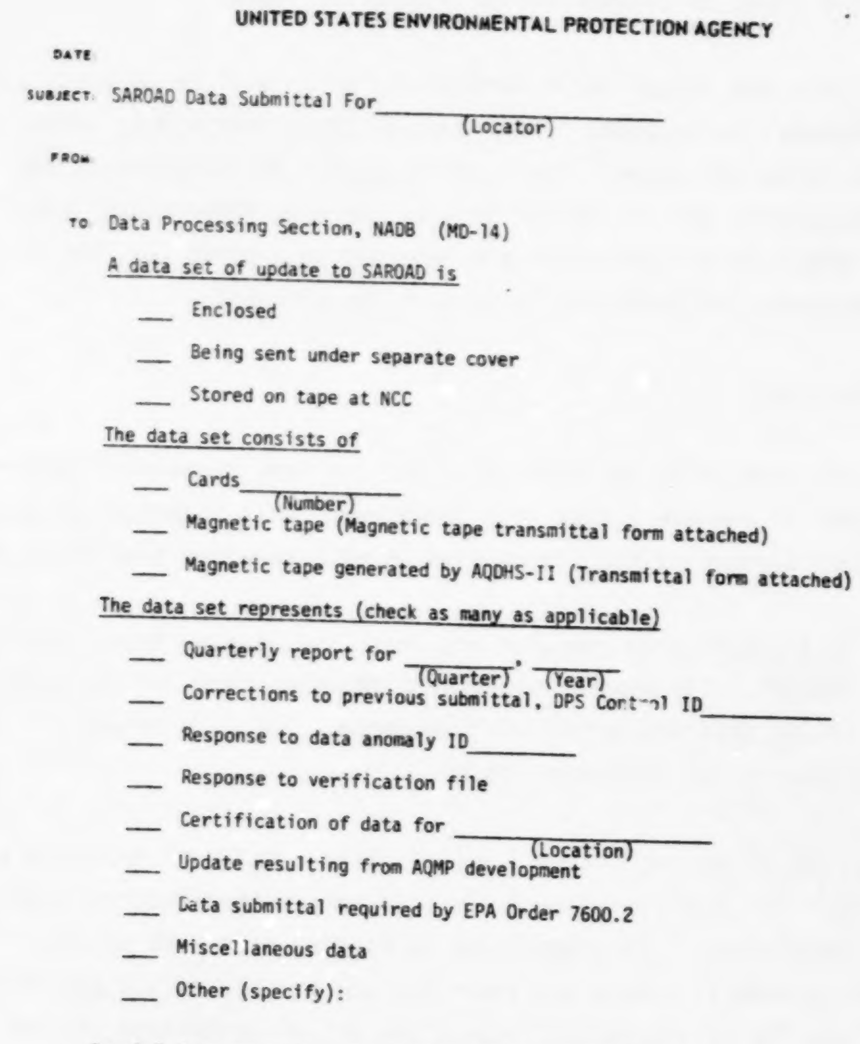
As the data are logged in, a control ID, which will be used for all future references, is assigned. This control ID is assigned by using SRD as first three characters, the state or region abbreviation as the next two characters, and the Julian date as the next three characters. If several data sets or tape files are received on a given day, the files are uniquely identified by letters of the alphabet.

Post-Edit Inventory

After the Control ID has been assigned, the Data Processing Section executes NA049 to produce a Post Edit Inventory. This inventory gives DPS the actual picture of the composition of data received from the R.O.

NA049 is a stand-along computer run which requires an input tape created by NAA067. The program performs a sequence check on the data and aborts if the data are out of sort sequence. The only output from the program is the inventory report.

The inventory report, Figure 7.3.2-c, lists a tally of observations by action code for each state/area/site/pollutant/method/interval/year/month/unit combination. For continuous monitoring data with an add transaction, quarterly totals are computed, and for months and quarters with less than 75% of the possible data, the actual percentage is computed. When a state ends, totals are printed for the state, and when the data set ends, totals are printed for adds, changes, and deletes.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

DATE

SUBJECT SAROAD Data Submittal For ____________ (Locator)

FROM

TO Data Processing Section, NADB (MD-14)

A data set of update to SAROAD is

___ Enclosed

___ Being sent under separate cover

___ Stored on tape at NCC

The data set consists of

___ Cards ________ (Number)

___ Magnetic tape (Magnetic tape transmittal form attached)

___ Magnetic tape generated by AQDHS-II (Transmittal form attached)

The data set represents (check as many as applicable)

___ Quarterly report for ______ (Quarter), ______ (Year)

___ Corrections to previous submittal, DPS Control ID ________

___ Response to data anomaly ID ________

___ Response to verification file

___ Certification of data for ____________ (Location)

___ Update resulting from AQMP development

___ Data submittal required by EPA Order 7600.2

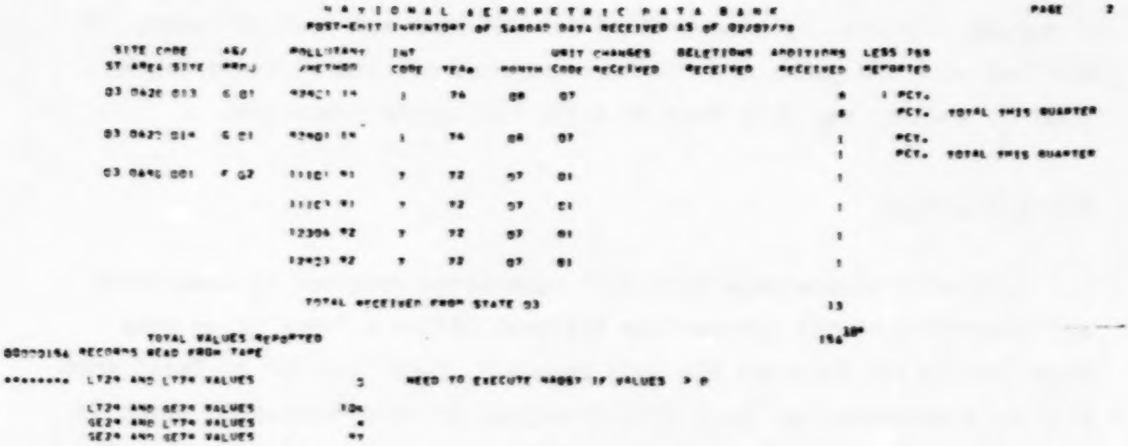
___ Miscellaneous data

___ Other (specify):

Special data processing instructions/additional information:

Figure 7.3.2b. SAROAD Data Submittal Form.

EPA FORM 1320-6 (REV. 3-76)



```
                         N A T I O N A L   A E R O M E T R I C   D A T A   B A N K                                PAGE    2
                         POST-EDIT INVENTORY OF SAROAD DATA RECEIVED AS OF 02/07/79

  SITE CODE     AG/   POLLUTANT   INT                  UNIT CHANGES    DELETIONS   ADDITIONS  LESS THAN
 ST AREA SITE  PROJ    /METHOD    CODE  YEAR    MONTH  CODE RECEIVED   RECEIVED    RECEIVED   REPORTED

 03 0420 013   G 01   42401 14     1     76      08     07                               8       1 PCT.
                                                                                         8         PCT.  TOTAL THIS QUARTER

 03 0420 014   G 01   42401 14     1     76      08     07                               1         PCT.
                                                                                         1         PCT.  TOTAL THIS QUARTER

 03 0440 001   F 02   11101 91     7     72      07     01                               1

                      11103 91     7     72      07     01                               1

                      12306 92     7     72      07     01                               1

                      12403 92     7     72      07     01                               1

                         TOTAL RECEIVED FROM STATE 03                                   13

           TOTAL VALUES REPORTED                                                        156*
00000156 RECORDS READ FROM TAPE

********  LT29 AND LT79 VALUES          3      NEED TO EXECUTE NADBY IF VALUES  > 0

          LT29 AND GE79 VALUES        104
          GE29 AND LT79 VALUES          4
          GE29 AND GE79 VALUES         47
```

*See Figure 7.2.2-b SAROAD Merge/Update Sheet

Figure 7.3.2-c Post Edit Inventory

The sum of the adds, changes, and deletes for a data set should equal the total Output Records Generated from NAA067 or from the or merges. Totals are also printed for <24 hour and <cut off year; >24 hour and <cut off year; and >24 hour and >cut off year. These totals identify whether the data must be split for update processing.

Acknowledgement

NADB will acknowledge each data submission received by completing and forwarding to the appropriate Regional Office a "Receipt of Data Submitted to the National Air Data Branch." Each "Receipt of Data" form will be accompanied by "Post Edit Inventory of Data Received," which is a computer listing of the data received in the subject submission. The Regional Office, in turn, notifies the data originator of the disposition of this data.

The "Receipt of Data Submitted to the National Air Data Branch" (Figure 7.3.2-d) is completed as follows. The numbered explanations refer to the numbered areas on the sample form attached.

1. If this is a magnetic tape submission, enter an "X".

2. Enter the reel number or other unique identifying number of the magnetic tape submitted.

3. If this is a punched card submission, enter an "X".

4. Enter the name or office symbol of the organization that is submitting the data and the date of the transmittal memo.

5. Enter the date NADB received these data.

6. Enter an "X" to indicate the appropriate action codes submitted in the data.

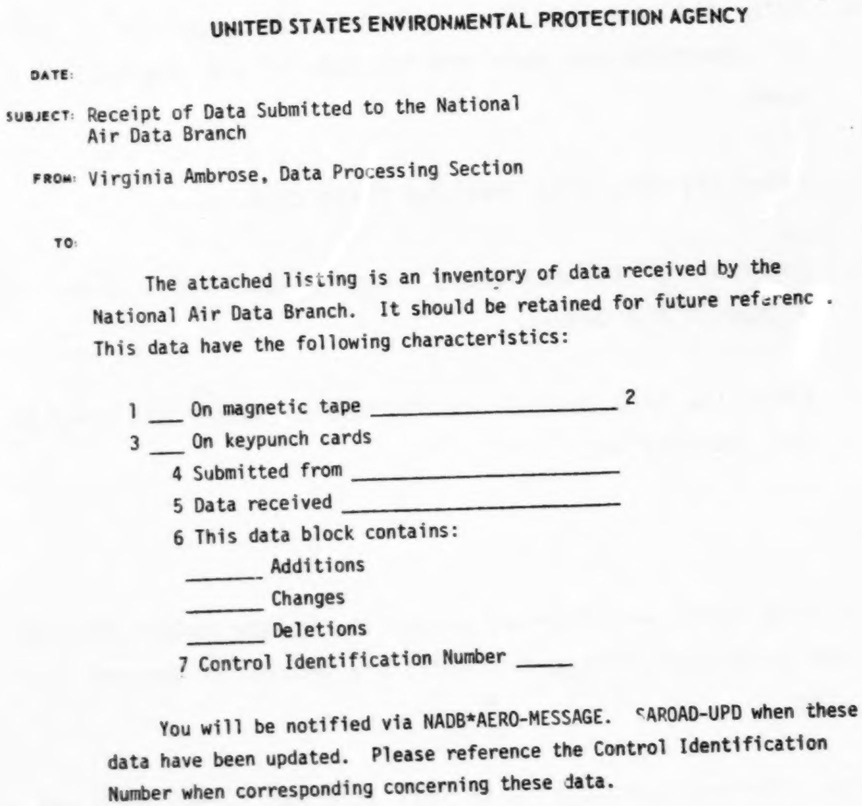
7. Enter the NADB Control Identification Number assigned to this submission.

Merge Split

All data sets which are received before the update cutoff date and which have been processed through Post-Edit are processed through the Merge-Split step.

The Merge combines individual data sets into one sorted data set which will be updated. After this data set is created, by several series of merges of five data sets, the split is run. Control information from both the merge and post-edit runs provides audit trail functions to establish data accuracy and consistency.

NA057 is the program which splits the single merged data set into data sets to update the greater than 24 hour file, the current less than 24 hour file, and the historic less than 24 hour file. A control card permits specification of the year to split historic vs. current less than 24 hour data.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

DATE:

SUBJECT: Receipt of Data Submitted to the National
Air Data Branch

FROM: Virginia Ambrose, Data Processing Section

TO:

The attached listing is an inventory of data received by the National Air Data Branch. It should be retained for future referenc . This data have the following characteristics:

1 ___ On magnetic tape ________________ 2
3 ___ On keypunch cards
4 Submitted from ________________
5 Data received ________________
6 This data block contains:
_______ Additions
_______ Changes
_______ Deletions
7 Control Identification Number _____

You will be notified via NADB*AERO-MESSAGE. SAROAD-UPD when these data have been updated. Please reference the Control Identification Number when corresponding concerning these data.

Figure 7.3.2-d Receipt of Data Submitted to NADB

EPA FORM 1320-6 (REV. 3-76)

NA057 utilizes the merged transaction tape as input and produces up to 3 output data sets for>24 hour data, historic<24 hour data, and current<24 hour data. These 3 output data sets are input to 3 individual updates.

Update

After the air quality data have been processed through the split. the update transactions are updated to the raw data files. The update programs (NA029 and NA029/D) create new raw data files, a summary of transactions which is sent to Regional Office (Figure 7.3.2-e), a changes tape to be utilized to calculate the summaries, and a tape containing the rejected data. The summary files are created/updated after the raw data files, but no output is created for review by the R.O.

A review of the "Summary of Transactions" by the R.O. will indicate whether any data were rejected. If any data were rejected, the program NA029B is utilized to create a listing of rejects as shown in Figure 7.3.2-f, or NA029B is utilized to create SAROAD card format data which can be corrected and resubmitted through NAA067. The rejects listing (Figure 7.2.3-f) contains six columns across the page and the contents of each column includes:

Column 1: Transaction Code

1 - Change Value	3 - Delete Value
2 - Add Value	4 - Delete record

Figure 7.3.2-e Raw Data Summary of Transactions

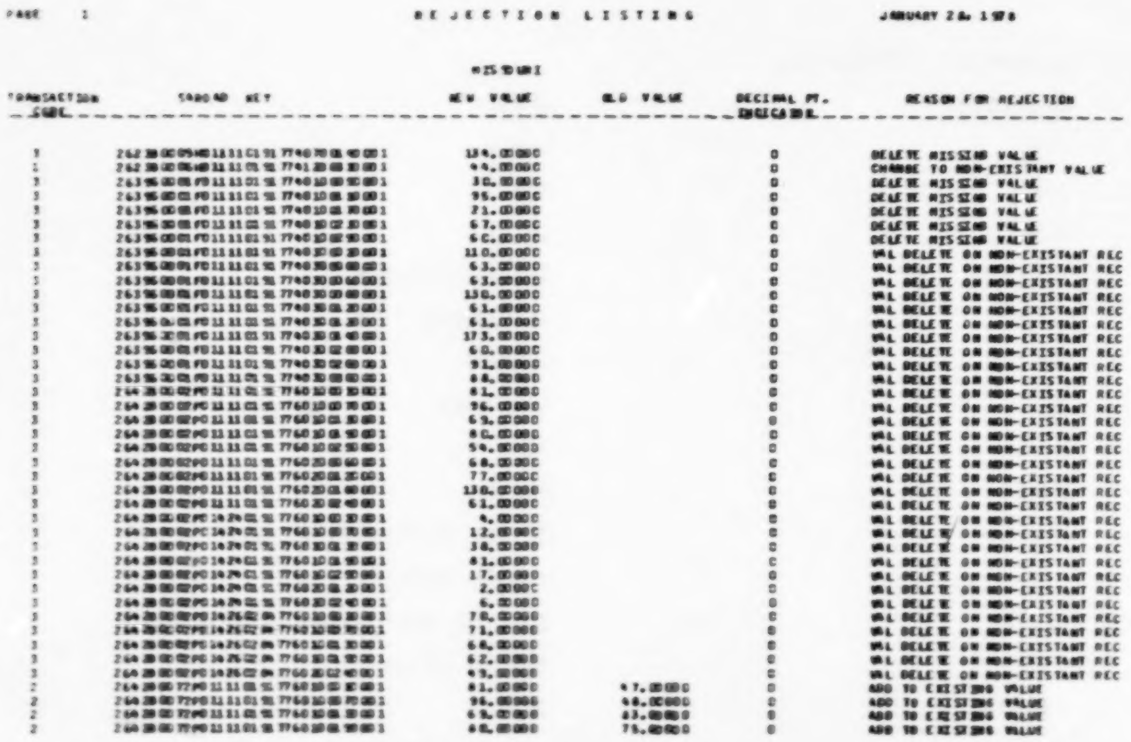


Figure 7.3.2-f Update Error Messages (SAROAD)

Column 2: SAROAD Key

Character	Item
1-2	State
3-6	Area
7-9	Site
10-12	Agency Project
13-17	Pollutant
18-19	Method
20	Interval
21-22	Year
23-24	Month
25-26	00 for daily value; day for hourly value
27-28	day for daily value; hour for hourly value
29-30	00
31-32	Units code

Colume 3: New Value which was rejected.

Column 4: Old Value - This column only completed when rejection message is 'Add to Existing Value giving both values to see if data have been processed twice.

Column 5: Decimal Point Indicator

Column 6: Reason for rejection gives the reason that the data were rejected. Additional error messages are given in Table 7.3.2-a

Table 7.3.2-a Error Messages

'INVALID ACTION CODE'

A code other than 1, 2, 3, or 4 was encountered on a transaction record. The record is written onto a Reject file.

'CHANGE FOR NONEXISTANT RECORD'

An attempt was made to change a nonexistant NOWDATA record. The trans record is written onto a Reject file.

'DELETE MISSING RECORD'

An attempt was made to delete a nonexistant NOWDATA record. The trans record is written onto a Reject file.

'ADD TO EXISTING VALUE'

An attempt was made to add a data value to a NOWDATA record which already contains that value. The trans record is written onto a Reject file.

'CHANGE TO NONEXISTANT VALUE'

An attempt was made to change a nonexistant NOWDATA data value. The transaction record is written onto a Reject file.

'DELETE MISSING VALUE'

An atempt was made to delete a nonexistant or missing NOWDATA data value. The transaction record is written onto a Reject file.

'VAL DELETE ON NONEXISTANT REC'

An attempt was made to delete a data value on a nonexistant NOWDATA record. The transaction record is written onto a Reject file.

Validation is the term used to identify action taken to assure that data are correct and complete. Validation of air quality data involves either a manual or automated review of the data to ensure that individual data values are within normal ranges for each specific pollutant. This validation should be performed by the control agency reporting the data to ensure that corrections are made as soon as possible and must be performed before the data are submitted to NADB. Although a manual review by an expert in air quality data would be ideal, the large volumes of air quality data have required the process to be automated.

Automated validation techniques have been developed and are described in the publication "Screening Procedures For Ambient Air Quality Data", EPA-450/2-78-037, OAQPS No. 1.2-092, Environmental Protection Agency, Research Triangle Park, N.C., July, 1978. These procedures are being installed as part of AQDHS-II of the Comprehensive Data Handling System and are available for all States to implement.

The automated validation techniques are an important step in the SAROAD terminal edit system as described in Section 7.1.2. Validation reports that are generated by the Regional Office for a routine data submittal must be returned to the reporting agency for evaluation, review and verification of the questionable data.

The reporting agency must submit corrections to validation reports to the Regional Office or verify to the Regional Office that the questionable data are valid. Data that are received by NADB will be assumed valid unless accompanied by a copy of the validation report as submitted to the reporting agency.